NORTHEAST DEALER ISSUE
Pages 9-16

Croplife®

TOTAL CIRCULATION OVER 8,700 COPIES EACH WEEK
BPA Member, Business Publications Audit

A WEEKLY NEWSPAPER FOR THE FARM CHEMICAL MANUFACTURER, FORMULATOR AND DEALER

Published by The Miller Publishing Co., Minneapolis, Minn.

Vol. 3 | Accepted as Controlled Circulation Publication at Minneapolis, Minn. | OCTOBER 29, 1956 | Subscription Rates: $5 for 1 year, $9 for 2 years | No. 44

FDA to Require Added Testing of Organic Phosphates

New Regulations Designed to Check On "Potentiation"

WASHINGTON — The Food and Drug Administration said Oct. 23 that new scientific evidence requires it to tighten safety controls over residues of organic phosphate insecticides used on food crops. Additional scientific testing will be needed to obtain official "tolerances" for sprays and dusts containing these chemicals, officials said.

George P. Larrick, food and drug commissioner, said that it has been found essential to test the organic phosphate insecticides for "potentiation," an increase of toxicity which has been found to occur when some of the compounds are used together.

"The FDA has been careful in establishing tolerances," Mr. Larrick said. "There is no indication that the tolerances now in effect for any of the organic phosphates constitute any hazard to the public health. But to be sure that we continue to safeguard the consumer adequately, we are going to require more evidence of safety in dealing with this type of compound in the future."

The nature of the additional evidence to be required is outlined in a policy statement published in the Federal Register Oct. 23. The statement refers to the new facts discovered in the FDA laboratories and says:

"Therefore in considering a petition for a tolerance or tolerances for an organic phosphate pesticide, the Food and Drug Administration will require experimental evidence show-

(Continued on page 21)

Control Officials Recommend Guarantee Change From Oxide to Elemental Basis

By GEORGE W. POTTS
Croplife Editorial Staff

WASHINGTON—A new model state fertilizer bill, which will change the fertilizer guarantees for phosphorus and potassium from an oxide basis to the elemental basis, was unanimously adopted by voice vote at the tenth annual convention of the Association of American Fertilizer Control Officials held at the Shoreham Hotel here Oct. 19.

The new bill would permit fertilizer officials to require after July 1, 1960, that guaranteed analysis be in the form N, P and K to indicate total nitrogen, available phosphorus and soluble potassium, rather than the previously used P_2O_5 for available phosphoric acid and K_2O for soluble potash. The accepted bill, which representd the eleventh draft, was introduced and explained at the session by S. B. Randle of New Brunswick, N.J.

The model state fertilizer bill provides that "at any time after July 1, 1960, that the (fertilizer official) finds after public hearing following due notice, that the requirement for expressing the guaranteed analysis of phosphorus and potassium in elemental form would not impose an economic hardship on distributors and users of fertilizer by reason of conflicting label requirements among the states, he may require by regulation thereafter the 'guaranteed analysis' shall be in the following form:

Total Nitrogen (N) ...per cent
Available Phosphorus (P) ...per cent
Soluble Postassium (K) ...per cent

provided, however, that the effective date of said regulation shall not be less than six months following the issuance thereof, and provided, further, that for a period of two years following the effective date of said regulation, the equivalent of phosphorus and potassium may also be shown in the form of phosphoric acid and potash; provided, however, that after the effective date of a regulation issued under the provisions of this section, requiring that phosphorus and potassium be shown in the elemental form, the guaranteed analysis for nitrogen, phosphorus and potassium shall constitute the grade."

Later in the program action was taken in the form of a resolution pointing to the change in guarantees from an oxide to elemental basis and putting the association on record as "recommending to the respective states that it is essential to American agriculture for each state law to be amended to permit by July 1, 1960 such change on a gradual but uniform basis as provided in the model state fertilizer law."

Copies of the resolution were sent to the National Association of Commissioners, Directors and Secretaries of Agriculture and each of its members; Soil Science Society of America; the Experiment Station Committee on Organization and Policy and

(Continued on page 8)

Pesticide Control Officials Hear of Research Trends, See Bright Future for Herbicides

WASHINGTON—A comprehensive outline of the aims and problems of the control official, a sum-up of research trends in chemical insect control and bright picture of opportunity ahead in weed control activities were presented at the tenth annual convention of the Association of American Pesticide Control Officials, Inc., held at the Shoreham Hotel here Oct. 19-20.

C. A. Bower, director of the division of entomology and plant industry, Oklahoma City, retiring president of the association, said in his presidential address that the control officials could be of even greater service to both industry and the pesticide user in areas beyond the scope of the laboratory.

"Our inspectors scattered throughout the state can either make or break us in the matter of public relations with the dealers and users," he said. "This relationship at the so-called grass roots is vital. The grower needs the pesticide. The manufacturer wants to sell it. Sometime neither is satisfied, and our inspector is called upon to make proper investigation."

In this connection Mr. Bower cited two cases in his state last year where investigations came out in favor of a manufacturer and an aerial duster on disputed issues.

"The dealer and grower must be convinced of the impartiality of

(Continued on page 17)

August Coke Oven Ammonium Sulfate Output Down From Year Ago

WASHINGTON — August production of coke oven ammonium sulfate totaled 132,631,008 lb., compared with 163,243,700 lb. in August a year ago, according to the Bureau of Mines. July production, which was held down by the steel industry work stoppage, was 47,424,655 lb.

Sales in August of this year amounted to 79,066,523 lb. compared with 44,953,800 lb. in July and 83,655,400 lb. in August a year ago. Stocks on hand at the end of August totaled 343,392,044 lb., a gain from 289,169,279 at the end of July and 298,854,981 at the end of August, 1955.

Fertilizer Plant Safety Responsibilities Outlined

By LAWRENCE A. LONG
Editor of Croplife

CHICAGO, ILL.—E. O. Burroughs, Jr., F. S. Royster Guano Co., Norfolk, Va., was named chairman of the fertilizer section of the National Safety Council at the group's annual meeting in Chicago, Oct. 22-23. Mr. Burroughs, who is manager of the insurance department of Royster, succeeds Curtis A. Cox, Virginia-Carolina Chemical Corp., Richmond, Va., in the position of national chairman.

Other officers named at the meeting were as follows: George F. Dietz, Fertilizer Manufacturers Cooperative, Baltimore, vice chairman; and G. L. Pelton, personnel manager, Smith Agricultural Chemical Co., Columbus, Ohio, secretary.

That the responsibility for the degree of safety in a plant lies on top management, was emphasized in a talk by H. B. DeVinny, director of industrial relations, Davison Chemical Co., Baltimore. He pointed out that the management of fertilizer companies should be vitally concerned with the development of better safety records, because there is much to be gained by paying closer attention to this matter. He said the rewards for safety promotion are twofold:

In the first place, there is a considerable amount of prestige connected with a good safety record. It is a matter of genuine pride to operate on an accident-free basis.

Secondly, he said, there are definite financial rewards in connection with the achievement of good safety

(Continued on page 20)

Inside You'll Find

World Report 6
Over the Counter 9
Field Notes 9
What's New 10
Ringing the Cash Register 12
What's Been Happening 12
Bug of the Week 14
Farm Service Data 15
Editorials 22
Meeting Memos 23
Index of Advertisers 23

Missouri Firm Starts Operation of New Complete Liquid Plant

LEXINGTON, MO. — Lafayette Farm Supply here has started operation of its new complete liquid fertilizer plant, which will serve the Missouri River basin were in western Missouri.

The installation includes an anhydrous ammonia converter and a completely automatic mixing system, with capacity of 15 tons an hour. The plant was engineered by Ellsworth Equipment & Engineering Co., Indianapo-

WASHINGTON WIRE

The '56 Election and the Agricultural Problem

By JOHN CIPPERLY
Croplife Washington Correspondent

WASHINGTON—It seems certain that the next session of Congress will face a new and even more bitter fight over the farm problem no matter which party controls the White House, Congress or both.

It has been observed that the campaign platforms of both parties offer little in the way of constructive direction. Radical legislative surgery will be necessary when the new Congress convenes.

Before such drastic surgery can be performed, however, it will be necessary to make a new diagnosis of the farm problem, for its complications are clearly discerned in the diversity of political opinion in the major areas of the farm belt.

It is forecast that the present struggle between high level parity supports and flexible supports will die after the election. Observers who have covered the farm belt say that the farmer is no longer convinced that price supports at a high or a flexible level are the answer to his problem.

Parity Real Issue

In some influential quarters there is a growing belief that the concept of parity itself may be the battle ground. In view of the dynamic nature of the fight that can arise over such an issue, it is small wonder that neither of the major political parties has been willing to toss this issue before the electorate.

Few informed farm economists see in the Soil Bank anything other than a transient instrument devised to speed up the reduction of farm surpluses. In fact one farm economist, speaking recently in California, stated that the Soil Bank was merely another form of acreage allotments.

That his judgment may be correct is found in evidence from important areas of the farm economy.

It is observed here that the campaign battles over the farm economy have failed to join the issues. It is true that there are rumblings of discontent in wide areas of the corn belt and the Great Plains states.

One party in its appeal for farm votes would return to rigid 90% of parity support for the basic commodities, and in so doing skip over the presence of rigid high level parity support which is generally charged as the cause of mounting surpluses. Disposal of these surpluses is being paid for by U.S. taxpayers everywhere, including the farmers themselves, whether the surpluses are given away or sold at great discounts in the export market which, in turn, makes economic enemies every day in a world where the U.S. sorely needs allies.

The Republican party staunchly clings to the flexible price support principle previously backed by the opposition when it was in office.

The opposition comes forth with plans for a world food bank, an achievement which, if made operative, would in all probability wreck the major commodity markets. It would be a death blow to U.S. grain export interests and, in the long run, would bring little change, if any, in the world's deficit food areas. It has highly attractive sentimental appeal to the uninitiated, but makes little sense to the practical economist who immediately senses that a world food bank cannot add to the buying power of the food shortage nations merely because it is brought into existence through some supra-national body.

Call In Specialists

To the great distress of many thinking people, the farm problem solution is always left in the hands of the politicians who seek a political remedy—particularly a remedy which will maintain a status quo for the large segments of the farm economy at higher income levels. This is not a rejection of the wise counsel of farm political leaders. It is a suggestion that the farm political doctors may find it sensible to call in a specialist, or a group of economic specialists, to diagnose the disease which grips the farm community. The economic specialists may be able to suggest a correction which farm political leaders can use, just so it doesn't strike farms and farmers of the nation with too much impact.

For example: Let's go to the scientific-economic field of agriculture, where our attention is drawn to the recent comments of Russell Coleman, executive secretary of the National Plant Food Institute. He has assembled data to show the great reduction in cost of production and vastly improved profit to farmers in our major crops if they strive for maximum use of modern techniques in crop production on greatly reduced acreage. Dr. Coleman admits that this view of future modern farming has not been blue-printed down to the individual farm level. But his material obtained from a wide group of land grant college agricultural farm economists is startling in its concept and might readily be a starting point for the draft of a new farm program.

The Coleman concept takes on practical importance when the recent U.S. Department of Agriculture crop report is examined. Take corn as an example: On severely reduced acreage, the nation has produced what is almost a record crop. But despite this huge accomplishment, there are—within a few score miles of one another in the major corn belt states—farmers producing only 30-35 bu. an acre. On the other hand, the farmer who works his land scientifically is showing yields as high as 100 bu. to the acre.

This condition highlights the spottiness of the political nature of the farm community in this election. The 35-bushel-an-acre corn farmer feels the price squeeze intensely. He blames his plight on the reduction in price support levels. But at the same time he fails to recognize that the high level of price support merely makes the big more efficient farmer richer, and barely tends to maintain the small inefficient farmer's financial head above water.

In the heat of an election campaign, with all candidates eager to retain or gain office, there is no time to get that story across to an angry farmer, particularly to the farmer whose pocketbook has fewer dollars, or who faces the prospect of replacing his machinery at higher price levels next year.

Appeals for farm votes then amount to one side promising the soothing syrup of the return of high rigid price supports and the opposition pointing to the surpluses built up under those high levels of support as the basic evil which put the farmer in the present squeeze.

Both parties claim that the family farm is "the" way of life, but neither fully defines the family farm. It is like the family hardware store where business has been built on the sound judgment of an ancestor and maintained by a well-trained corps of his descendants. But even today those individual businesses are giving way to the highly efficient volume merchandise stores where the farmer can buy nails, fence-wire, refrigerators, carpeting, lime, seed, feed or an electronic device that will open a gate for his dairy cows to stroll to the barn for the evening milking. So, it is not only the family farm which is caught between the millstones of economic life; in this modern age all of us are caught in change.

Doubtful Ethics

There must be doubts in the minds of all of us as to the ethics of the politician who incites the farm community to make its election choice on a specious appeal for retention of the family farm only through the device of a return to rigid high price support.

An election campaign is no time or place to reach an intelligent decision on the farm problem. Neither party is all black or white on the issue. It will not be solved with heated and exaggerated pleas to the farmers.

As for the election campaign, it is observed here that its outcome will not solve the farm problem. In fact, it will probably tend only to confuse it more. After the ballots have been counted and the make-up of the new Congress is determined, extravagant claims of victory will come from both parties. Both will cry that the election returns are a mandate. But for farmers in the price squeeze it will solve nothing. The squeeze will remain just as real as if there had been no election.

Conrad A. Elvehjem Named 1956 Recipient Of Spencer Award

KANSAS CITY — Dr. Conrad A. Elvehjem, biochemist and dean of the graduate school at the University of Wisconsin, Madison, has been named the 1956 recipient of the Charles F. Spencer Award for meritorious contribution to the field of agricultural and food chemistry.

Leonard V. Sorg, chairman-elect of the Kansas City section of the American Chemical Society, the group administering the award, announced the result of the jury's balloting Oct. 26.

The Charles F. Spencer Award was founded by Kenneth A. Spencer, president of the Spencer Chemical Co., Kansas City, in honor of his father, first chairman of the board of the chemical company, Charles F. Spencer, who died in 1942. The award included a medallion and a $500 honorarium.

Dr. Elvehjem was nominated for his work in biochemistry. This work included discovery of the relationship between animal nutrition and trace elements in the soil.

The award will be presented Nov. 9 in Kansas City at the annual fall chemical conference sponsored by the Kansas City section of ACS.

Weed Display to be Special Feature of Washington Conference

PULLMAN, WASH.—A weed control conference has been scheduled at Washington State College here Nov. 15-16.

Conference agenda will include discussion on the use and place of new weed killers, roadside brush and weed control, irrigation weed control, place and use of 2,4-D and related herbicides and the place and use of soil sterilants, according to Henry Wolfe, Washington State College extension weed specialist.

Special feature of the conference will be a display of more than 200 weeds common to Washington. It will be manned by WSC experts ready and willing to identify and give control measures for all the pests in the display. Included in the exhibit will be annual, perennial, poisonous and sneeze weeds; and invaders of turf, range, irrigated areas and dryland sections. Weeds from all parts of the state will be included in the display, Mr. Wolfe said.

MICHIGAN TESTS

Method of Applying Fertilizer Makes Yield Differences

EAST LANSING, MICH. — Crop yields are directly affected by the way fertilizer is applied, according to tests made by soil scientists and agricultural engineers at Michigan State University.

In muck soil tests, the researchers found that method of application made as much as 103% difference on onion yields and up to 50% on spinach yields.

From the research, the scientists concluded that fertilizers for these two crops should be placed in a band two inches below the seed level or in a band one inch to the side and two inches below the seed level.

If more than 800 lb. per acre of a fertilizer like 5-10-20 is to be applied with row spacing of 16-18 inches, the excess should be put on ahead of planting with a fertilizer grain drill, be broadcast on the surface or plowed under, the researchers said.

The amount of fertilizer that can be applied safely in a band two inches below the seed depends on the amount of moisture in the seedbed at planting time, the row spacing and how well the applicator maintains the depth of two inches below the seed. The wider the row spacing the less fertilizer per acre should be placed in the band.

The researchers think that a good way to fertilize the crops is to put the nitrogen and phosphorus in a band two inches below the seed and broadcast the potash.

The researchers who made the tests are J. F. Davis and L. N. Shepherd of the soil science department, W. C. Hulburt of the U.S. Department of Agriculture and C. M. Hansen of the agricultural engineering department.

GLF Hits New High in Goods Bought, Sold

SYRACUSE, N.Y. — Cooperative G.L.F. Exchange, Inc. of Ithaca, N.Y. reached an all-time high in amount of goods bought and marketed through the farmer cooperative in its fiscal year 1955-56, according to a report issued during the 36th annual stockholders meeting here.

Total dollar volume slipped $1,750,000 to fifth high on record, while net profit before taxes is second high in the history of the cooperative. Records show goods handled rose slightly every year for the past five years, while total dollar volume dropped each of the five years.

The record-breaking figure for business, in "adjusted tons," is 2,612,000. Dollar volume amounted to $163,000,000 and net profit before taxes was $4,354,000.

Increases include 21,000 tons of feed and ingredients; 6,500,000 gallons of petroleum products, and 53,000 cases of eggs and 160,000 bushels of grain marketed. Very small increases in fertilizer and seed tonnage were blamed on the poor planting season throughout the spring and summer.

Another all-time high was dollar volume recorded by the cooperative's farm supplies division, which jumped $1,800,000 to just under $16,000,000. The division handles hardware items.

New Mexico Tonnage

STATE COLLEGE, N.M. — Fertilizer shipments into New Mexico from July 1 to Sept. 30, 1956 totaled 3,66[illegible] tons, according to the state Feed & Fertilizer Control Office. Included in this total were 1,701 tons of anhydrous ammonia.

Soil Bank May Boost Fertilizer Use, Agronomist Says

AMES, IOWA—Fertilizer use may be in for a big boost as a result of the conservation reserve program of the soil bank act, E. R. Duncan, Iowa State College agronomist, said recently.

Conservation reserve goals are high, and most of the land that will be seeded and put in the reserve will need fertilizer and lime, Mr. Duncan said.

The national conservation reserve goal for 1957 is 20 million acres. Iowa's share of that huge total is 900,000 acres. If participation pushes reserve acreage near that level, superphosphate use in the state could be expanded by 90,000 tons, Mr. Duncan said. On the same basis, potassium fertilizer use would be increased by 27,000 tons.

Oregon Weed Control Conference Scheduled Nov. 12-14 at Bend

BEND, ORE.—The annual strategy meeting for Oregon's continuing war on weeds is scheduled Nov. 12 to 14 at Bend, reports Roy Stevenson, president of the Oregon Weed Conference. New chemicals, weed control for both farm and non-farm lands and weed problems of forest and range lands are main phases of this year's program. Advance copies of the program can be obtained from Rex Warren, Oregon State college farm crops specialist, conference secretary.

Representatives of four major chemical companies will report on new chemicals—what they control and how to use them. OSC scientists will review experimental work with weed control on both agricultural and non-agricultural lands. The latter includes home and industrial sites, parks and golf courses and right-of-ways for highways and utilities.

Weed and brush control on range and forest lands will be discussed by U.S. Forest Service representatives and Don Hyder, OSC researcher, of the Squaw Butte-Harney branch experiment station near Burns, who will advise ranchers on aerial and ground spraying for control of sagebrush and rabbit brush.

Other topics for the three-day session include: safer use of herbicides, Virgil Freed, OSC agricultural chemist; control of weeds in and along ditches, Dean Boyle, Boise, U.S. Bureau of Reclamation; cost study of commercial spray application; weed law report and common ragweed in Oregon, Frank McKennon, state Department of Agriculture.

Sessions will start Nov. 12 at 1:30 p.m., Pilot Butte Inn.

Atlas Net Gains 26% in Nine Month Period

WILMINGTON, DEL.—Atlas Powder Co.'s net earnings in the first nine months of 1956 were $3,294,608, or $4.40 a common share, Ralph K. Gottshall, president, reported Oct. 22. This was a 26% gain over the $2,616,193, or $3.43 a common share, earned in the same period last year.

Third quarter net earnings for 1956 were $1,059,291, or $1.41 a common share, against $928,010, or $1.20 a common share in the third quarter of 1955. Before Federal income taxes, the 1956 nine months' earnings were $6,911,608, compared with $5,315,640 in the 1955 period.

Sales and operating revenues from explosives and chemicals totaled $49,799,496, in the first three quarters of this year. This was an 8% rise over the $46,397,974 reported in the first nine months of 1955. The 1955 figures have been adjusted to reflect the operating results of Aquaness Corp., which became a department of Atlas' chemicals division in January, 1956.

Program Announced For Southern Soil Fertility Conference

ATLANTA—Plans have been completed for the first annual Southern Soil Fertility Conference, to be held at the Atlanta Biltmore Hotel, Atlanta, Nov. 2.

The conference, sponsored by the Southern Regional Soil Research Committee and the National Plant Food Institute, will bring together soil scientists, agronomists, and fertilizer leaders from 13 southern states to discuss the importance of maintaining, replenishing and increasing the fertility of southern soils.

The Southern Soil Research Committee is composed of one soil scientist from each of the 13 southern land-grant colleges and universities plus soil scientists from the Agricultural Research Service and the Soil Conservation Service of the U.S. Department of Agriculture.

A feature of the meeting will be a discussion of the soil bank program for agriculture and a question-and-answer period relating specifically to its effect upon the fertilizer industry. A representative of USDA will be present to answer questions and to participate in the program.

Registration for persons attending the conference is scheduled for Nov. 1, from 3 p.m. to 8 p.m.

The conference will begin Friday morning, Nov. 2 at 9:30 a.m., with Howard T. Rogers, head, department of agronomy and soils, Alabama Polytechnic Institute, presiding. W. E. Colwell, assistant director of research, North Carolina State College, and C. T. Prindeville, president, National Plant Food Institute, will make the opening remarks. They will be followed by:

L. B. Nelson, head, eastern soil and water management section, USDA, speaking on "Off-Season Fertilizer Potentials in the South," and W. R. Thompson, pasture specialist, Mississippi State College, speaking on "Two Acres of Pasture on One Acre of Land."

Mr. Colwell will preside at the afternoon session, which will feature an address by M. S. Williams, chief agricultural economist of the institute, on "Fertilizing and Liming for Most Efficient Crop and Livestock Production," and a Grade-Ratio Committee Report by J. W. Fitts, head, department of soils, North Carolina State College, and Frank Boyd, president, Alabama Soil Fertility Society. Mr. Colwell will be moderator on a question-and-answer period which will follow.

The program committee for the conference includes:

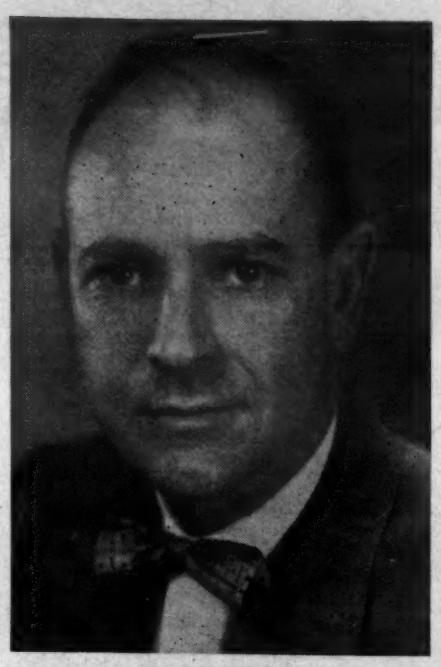
W. H. Garman, National Plant Food Institute, chairman; J. W. Fitts, North Carolina State College; W. R. Paden, Clemson Agricultural College; R. W. Pearson, USDA and Alabama Polytechnic Institute; C. M. Wilson, Alabama Polytechnic Institute; T. F. Bridgers, Farmers Cotton Oil Co., Wilson, N.C.; H. Vise Miller, Armour Fertilizer Works, Atlanta, and W. F. Nichols, Sylacauga (Ala.) Fertilizer Co.

Mining Conference

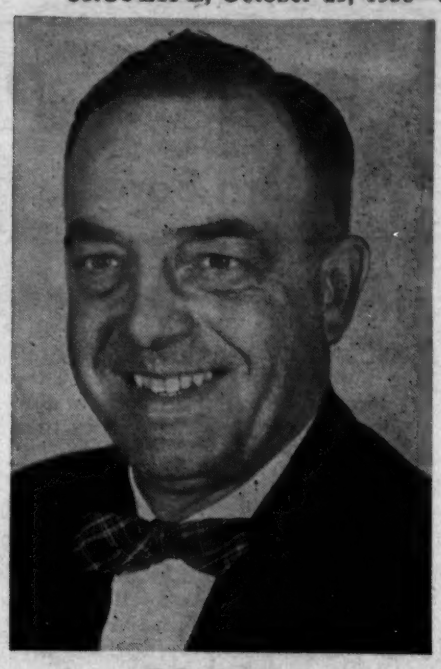
SAN FRANCISCO—Leaders of western chemical processing and mining industries will hold an all day conference Nov. 9, in the Fairmont Hotel here beginning at 9:15 a.m. The inter-industry conference, sponsored by the San Francisco Chamber of Commerce, will explore the mutual requirements of the chemical and mining industries in the eleven western states, according to E. W. Littlefield, chamber president.

GROWERS TO MEET

CARBONDALE, ILL.—The 26th annual convention of the Illinois State Vegetable Growers' Assn. will be held Nov. 1-2 at Southern Illinois University in Carbondale.



Russell Spivey



J. L. Gavaza

SMITH-DOUGLASS TRANSFERS—J. A. Monroe, vice president of the Smith-Douglass Co., announced recently that Russell Spivey, manager of the Smith-Rowland division of Smith-Douglass, has joined the parent company as fertilizer sales manager for the Norfolk branch. At the same time, J. L. Gavaza became manager of the Smith-Rowland division. In his new position, Mr. Spivey will assist Mills W. Darden, Norfolk branch manager and Smith-Douglass director. He will succeed Earle I. Greene, who recently resigned.

Rohm & Haas Appeals Patent Suit Decision

PHILADELPHIA—An appeal was filed Oct. 17 by attorneys for the Rohm & Haas Co. from a decision by the Federal District Court of West Virginia in the company's patent infringement suit against Roberts Chemical Co. The court recently entered an order which held invalid the patent under which Rohm & Haas Co. sells its Dithane brand fungicide.

"Our confidence in the validity of our patent is unshaken by this decision," said D. S. Frederick, Rohm & Haas vice president. "We believe we were right in suing to enforce our patent. In authorizing our counsel to appeal, we feel we have taken a proper and necessary step, not only in the protection of our own interests but also of the interests of our distributors and dealers."

Harold A. Ford Joins Olin-Mathieson

NEW YORK—Harold A. Ford has joined the industrial chemicals division of Olin Mathieson Chemical Corp., Baltimore, as assistant manager of nitrogen products. He was formerly sales representative in the Kansas City area for the Westvaco Chlor-Alkali Division of Food Machinery & Chemical Corp.

Prior to his association with Westvaco, Mr. Ford was active for a number of years in the nitrogen industry, first as buyer of nitrogen products for the Du Pont Co. and later as national accounts representative for Spencer Chemical Co. in Kansas City.

Southern Weed Conference to Stress Research, Education

MEMPHIS—Problems in control of specific weeds in specific crops will be analyzed at the 10th annual meeting of the Southern Weed Conference in Augusta, Ga., Jan. 23-25.

The conference program will include all phases of research and education in chemical weed control, Dr. W. B. Albert of the South Carolina Agricultural Experiment Station, Clemson, S.C., states. Dr. Albert is president of the conference.

Among the general topics planned for the program are fundamental aspects of weed control, control of specific weeds, control in specific crops, aquatic weed control, weed control in pastures and turf, weed control in non-crop areas, horticultural weed control and new developments.

Dr. J. K. Leasure of Dow Chemical Co., Midland, Mich., is chairman of the program committee. All sessions of the conference will be held at the Bon Aire Hotel in Augusta. Conferees are urged to make their hotel reservations early.

SELLS PARTNERSHIP

COLUMBUS JUNCTION, IOWA—J. H. Huston has sold his share of the Weber & Huston partnership to G. W. Weber. The business includes grain, flour, feed, fuel, fertilizer and machinery. A branch has been established in Letts. Mr. Weber's son, G. Lyle Weber, has been associated with the firm for some years and will continue as an active member.

CHOOSE YOUR AGRICULTURAL CHEMICAL APPLICATION EQUIPMENT FROM THE . . .

Complete Broyhill ® LINE

the name that means CUSTOM QUALITY

TRAILER, TRUCK or TRACTOR MOUNTED for

- Aqua Ammonia
- Nitrogen Solutions
- Insecticides
- Weedicides

Write today for a complete catalog to

THE BROYHILL COMPANY DAKOTA CITY, NEBRASKA

INSECT, PLANT DISEASE NOTES

Iowa Corn Borer Infestation Lower Than Year Ago

AMES, IOWA—The 1956 Iowa fall corn borer survey Oct. 19 showed the present corn borer infestation is considerably lower for most of Iowa than it was a year ago.

Dr. H. M. Harris, state entomologist and head of the department of entomology and zoology at Iowa State College, said the survey shows a state average of 215 borers per 100 plants. The average last fall was 349. These figures represent the average count for the 12 survey districts into which the state is divided.

Dr. Harris said the north central district centering around Clarion and the district in extreme northwestern Iowa are the only two districts where the borer count this fall exceeded the count a year ago.

Heaviest corn borer infestation is in the eastern district centering around Tipton, where the count is an average of 332 borers per 100 plants. This same district also had the heaviest borer infestation last fall when the count was 689 borers per 100 plants. Lowest infestation is in the extreme northeastern district where the count is 68 borers. This district also was low last year with 194 borers per 100 plants.

Many of the borers found in this year's survey were in the early developmental stage, Dr. Harris pointed out. This means, he said, that a larger than normal percentage of the borer population will be subject to winter kill.

The statewide survey also showed that the percentage of plants infested was down considerably from last fall. In 1955, the state average of plants infested was 93.2%, compared to 80.9% this fall. The north central district, one of the two districts where borer numbers per 100 plants was higher this fall than a year ago, also was the only district reporting over 90% of the plants infested.

Dr. Harris said that spot checks of sorghum fields throughout the state indicated a "surprising" susceptibility of this crop to borer damage. Up to 100% infestation was reported in some fields.

Dr. Harris said Iowa still has a potentially serious borer population, even though numbers are down from a year ago. Whether this potential will develop to threaten next year's crop depends primarily on such factors as the amount of winter kill, the number of eggs laid and the degree of control other parasites provide in checking corn borer activity.

The amount of borer damage to this year's crop cannot be determined more specifically until the yield figures are available. However, Dr. Harris said, each borer in a mature corn plant can be expected to cause about a 3% loss. On this basis, the count this fall of a state average of 2.15 borers per stalk (215 per 100 stalks) would mean the state's corn harvest probably will be reduced about 6.5% as a result of corn borer damage, he explained.

Alfalfa Aphid Threatens Damage in Illinois

URBANA, ILL. — The spotted alfalfa aphid is now building up to damaging numbers in western and southwestern Illinois, reports H. B. Petty, entomologist at the University of Illinois College of Agriculture and Natural History Survey.

This pest was found in Illinois in July. But it did not develop to damaging proportions until late September and early October. It seems that large migratory flights of aphids from Missouri occurred during this same time. The dry weather of the past few weeks has further built up damage by this pest.

Heaviest infestations now occur in counties adjacent to the Mississippi River from Cairo to Carthage, but aphids are also present in all counties across the southern part of Illinois.

Clover Leaf Weevils Active in Alabama

AUBURN, ALA.—The clover leaf weevil, which inflicted such serious damage to alfalfa, crimson clover and white Dutch clover crops in central Alabama last summer, may become even more of a menace to Alabama's pasture and forage crops next year.

W. A. Ruffin, Alabama Polytechnic Institute extension entomologist, warned last week that reports indicate this pest is fast becoming a serious problem throughout the state. Although its heaviest infestation this year was found in the Black Belt area, the weevil is attacking all pastures and forage crops in the state.

Mr. Ruffin said that entomologists at API Experiment Station have found the most effective control to be a spring treatment of the plants—just as the bloom heads begin to form.

Vegetable Diseases In South Carolina

CLEMSON, S.C.—Marked yellowing of soybeans is reported in the Coastal area. This is a normal ripening process. Corn earworm damage to soybeans has long since ceased, but many farmers are just waking up to realize the loss.

Lespedeza webworm is causing failuse of seed crops in untreated fields in Marlboro County. Fall blooming of pears result of defoliation by leaf spot. European hornet reaches Anderson.

Among the vegetable diseases are the following: Squash mosaic makes squash production hazardous; downy mildew of squash present; fruit rot of cucumbers becoming major problem; Anthracnose of cucumbers widespread but only locally serious; downy mildew of cucumbers minor because of resistant varieties; gummy stem blight of muskmelon ruined crop at Truck Station.

Among the insects still being trapped at Clemson are armyworms, corn earworms, and several species of cutworms. Considerable catch of armyworms and yellow-striped armyworms and corn earworm at Florence. Catch of Southern potato wireworm continues high, Charleston. Other insects captured in numbers are velvetbean caterpillar, grassworm, corn earworm, several species of cutworms and armyworms.

Aphids Inflict Damage in Colorado

FORT COLLINS, COL. — Aphids have inflicted heavy damage on a wide variety of crops and shrubs in Colorado during 1956, the Colorado insect detection committee has reported.

It said the most troublesome, the common pea aphid, had reproduced and apparently thrived despite extensive biological and chemical measures taken against them.

Alfalfa, corn, potatoes, sorghums and ornamentals, particularly roses and asters, have been hardest hit, the committee said.

The committee also said the alfalfa aphid had caused considerable destruction, and was still infesting fields in Sedgwick, Weld and Morgan counties.

Forage Truck Crop Insects in Florida

GAINESVILLE, FLA. — A wireworm in larval stage was collected on sweet corn planted in organic soil at Belle Glade, Palm Beach County. A grass lopper in larval and pupal stages averaging 2 per plant was collected on maiden cane grass at Miami, Dade County.

A cicadellid in adult stage was collected on brassica at Boca Raton, Polk County. A lacewing in adult stage was collected on orange at Miami, Dade County. A lace bug in adult stage averaging 1-3 per leaf on 40 inspected was collected on loquat at Macclenny, Baker County.

Spirea aphid in nymphal and adult stages averaging 75-100 per sq. in. of leaf surface on 12 inspected was collected on loquat at Macclenny, Baker County. Only one plant out of about 2,500 inspected was infested. An arctiid in larval stage averaging 2 per plant was collected on jaboticaba at Homestead, Dade County.

Almond moth and fruit scarring worm in larval stage were collected on grapefruit at Miami, Dade County. Two larvae of each were found on 50 grapefruit inspected. Each of the examined fruit had several small holes (pin head size) extending through the rind to the flesh.—H. A. Denmark.

Alfalfa Aphid Continues Damage in Kansas

MANHATTAN, KANSAS — Scattered localized infestations of spotted alfalfa aphids continue in destructive numbers in some areas of east central Kansas. Heavy populations with counts of over 1,000 aphids per sweep and copious amounts of honey dew are present in a number of fields in the Kansas River Valley. Some seedling alfalfa fields have infestations requiring insecticidal control.

No cattle grubs were found in the backs of 210 head of cattle examined near Manhattan, Riley County, Kansas. Examination of a herd of cattle (210 animals) near Manhattan, Riley County, Kansas, showed an average of 8 horn flies per animal.

Specimens collected earlier in the summer from vetch in Pottawatomie County, northeast and Labette County, southeast, have been identified as vetch bruchids. This establishes a modern distribution record in Kansas for this insect.—Dave Matthew.

Hoppers to Overrun 750,000 Acres Of Private Land in Wyoming in 1957

CHEYENNE, WYO.—Almost 750,000 acres of privately owned Wyoming range will be infested with grasshoppers next summer, Everett Spackman, state entomologist, says.

Another 100,000 acres of federal land will be overrun by the pests, he said.

The figure includes 22,800 acres of state and private range which will be subjected to invasion by Mormon crickets.

U.S. Department of Agriculture surveys indicate Crook County will bear the brunt of the invasion with 159,000 acres figured for grasshopper infestation. Others include Albany County, 137,000 acres; Johnson County, 112,000 acres; Natrona County, 103,000 acres, and Park County, 83,200 acres.

A cooperative control program covering 725,920 acres has been projected for 1957. This is triple the size of the 1956 control program, which cost $123,231.

Leading Economist To Address California Fertilizer Meeting

SAN MARINO, CAL.—A review of "Costs, Markets and Prospects in the Fertilizer Industry" will be delivered by Dr. Philip Neff, director, Industrial and Governmental Economics Research of Planning Research Corp., Los Angeles, and UCLA economics professor, before the 33rd annual convention of the California Fertilizer Assn. at its Nov. 12 session.

Approximately 600 will attend the association's annual convention, to be held at Hotel del Coronado, Coronado, Nov. 11-13. Presiding over the sessions will be William E. Snyder, Los Angeles, association president. The convention theme will be "Some Aspects of Fertilizer Industry Economics."

Dr. Neff is a leading authority in the field of economic analysis, locational and organizational studies and forecasting. He is currently on leave of absence from the University of California at Los Angeles, where he serves in the capacity of associate professor of business economics, School of Business Administration.

In his review, Dr. Neff will analyze for the fertilizer industry leaders the costs of manufacture, assembly of raw materials, problems of marketing and an extensive forecast of trends in the state and national industry. He has authored numerous articles dealing primarily with business cycles and forecasting.

Elmer Wheeler of Dallas will be featured following luncheon on Nov. 12, on "Selling the Sizzle in the Fertilizer Business."

To round out the program developed around the theme, a panel discussion will be held that afternoon. Moderated by Dr. Daniel G. Aldrich, Jr., chairman, department of soils and plant nutrition, University of California, the panel will include George Monkhouse, vice president, Shell Chemical Corp., San Francisco; Ned Lewis, vice president, Wilbur-Ellis Co., Los Angeles; and J. Earl Coke, vice president, Bank of America, San Francisco. Assembled delegates and guests will participate in panel discussion.

An enjoyable program is planned for the benefit of all ladies in attendance, according to Mrs. John Garretson, Chula Vista, in charge of the ladies' program.

Phosphorus Pentasulfide Available in Two Grades

ST. LOUIS — Availability of two grades of phosphorus pentasulfide has been announced here by Monsanto Chemical Co.'s Inorganic Chemical Division.

At the same time plans for almost doubling production capacity were revealed. Production of the two grades of phosphorus pentasulfide is made possible by recently completed additions to manufacturing facilities at the company's Monsanto, Ill., plant. Both grades are available in carload or truckload quantities.

SEMINAR CHAIRMAN

CHICAGO—Dr. Robert Sauer, vice president of the Velsicol Chemical Corp., Chicago, served as chairman of the American Management Assn. workshop seminar held Oct. 1-3 at the Sheraton-Astor Hotel in New York. "Management of Applied Research" was the topic of the seminar under Dr. Sauer's direction. Dr. Sauer is in charge of research and development for Velsicol.

Technological Advances Herald Further Progress in Fertilizer Conditioning

By ELMER C. PERRINE*
Nitrogen Division, Allied Chemical & Dye Corp.

Discussion of the development of many industries reaches far back into their history for some foundation of understanding. When arranging developments in order of importance, one quickly realizes that events which appeared as trifles in original concept may later have a profound influence on an industry.

Although the granulation of fertilizer covers nearly a generation of men, some of the main barriers to progress have been breached only recently and other serious obstacles remain. Granulation is very closely associated with ammoniation. Among other things, the successful continuous ammoniator has been a very important link in the long detour around the problems of converting from even good batch ammoniation to the subsequent stages of granulation which are best performed continuously. As long ago as 1938 a batch practice of granulation was greatly improved when the ammoniating medium was distributed evenly enough to about double the ammonia take-up, thereby imparting more heat to the mass at an early stage in the process. This early heat is accepted as a very important feature today.

The basic simplicity of many systems has probably limited development because passable results are obtained through the bare-handed skills of the better operators. The conspicuous contribution that manual skills have made to the industry gave rise to the statement that granulation is more of an art than a science.

As we welcome the high promise of science and technology, we still recognize the great importance of the skilled operator who will long remain the best ally the technician has. A few days' struggle with even the most instrumental equipment will demonstrate the value of skilled operating personnel. As in most good things that come to stay, science and technology are rapidly entering the industry.

The attaining of desirable physical condition in fertilizer was the original justification for granulating and this is still a very important reason. The trends in farming and the just demands of the consumer have increased the problems of fertilizer manufacturing. It is interesting to conjecture over the status of the industry if more effort had been expended to improve the machinery that applies fertilizer. As fertilizer is further improved, the limitations of the applying equipment will be brought more into light and some relief from the troubles over condition of fertilizer may be forthcoming from this angle. Beyond a certain perfection in a product further improvements in the end results are often more economically achieved through improved means of using the product. Attempting to solve all of the problems of applying fertilizer by granulating it may prove to be quite costly.

Some practices that had their origin in local usages are being rather widely adopted in the industry. For instance, at present prices it is economically justifiable in some cases to add to 1,000 lb. normal superphosphate as much as 30 lb. ammonia, through nitrogen solutions, beyond the point of 100% retention, knowing that only some 20 of these additional 30 lb. will be retained by the (normal) superphosphate.

This calculated loss is fairly predictable and is sometimes referred to as excess ammoniation. It is quite frequently practiced in rotary batch mixers. Some operators are actually doing this in rotary batch and in continuous ammoniators without recognizing it. Any gain in ammonia take-up beyond these figures in present equipment is made at the cost of so much lost ammonia that the use of acid is often resorted to. Thereafter the trend is toward excess acid rather than excess ammonia.

The inadequacy of equipment and skills in some cases has resulted in the use of as much as 75 to 80 lb. more sulfuric acid than is indicated by the ammoniation requirements alone. Under these circumstances, and in equipment that is marginal at best, it now seems probable that much of the granulation was dependent on the use of large amounts of sulfuric acid.

We now observe that acid serves an important function in granulation beyond those of ammonia take-up and heat.

It can become costly, however, to resort to great amounts of any acid to perform functions that can also be performed by mechanical equipment, low cost fuel, or through control of the chemical and physical actions of the normal ingredients of the formulae.

Granulation and the drying are greatly simplified when the mass enters the dryer at 200° F. or higher, but such temperatures are difficult to reach in the ammoniation and more difficult to hold for any time with the moisture content at a desired level. This is a potent statement for it justifies large amounts of ammonia and acid, it questions any delay between mixer and dryer and endorses the new commercial practice of using steam or hot water as the source of added water. Enough steam would be required in many cases that the local or state laws or insurance regulations would demand that a licensed engineer be in attendance.

One very important development is the realization reflected in later design and operation that regardless of the processing ahead of the dryer, the volume of acceptable granulation through the dryer is substantially lower than when the task is that of merely removing the moisture. This fact has been painfully forced upon equipment manufacturers and operators alike. Of the many efforts to increase the effectiveness of the dryer in granulation, the most obvious one of raising the heat in the dryer is less rewarding than some others which become quite involved. Even though there may appear to be quite complete granulation before the material enters the dryer, the need for drying in such a manner as to retain this condition does place a load on the dryer above its mere moisture removing capabilities.

Many systems intentionally or from lack of any other provision, require that practically all forming of granules be effected in the dryer. Some systems further burden the dryer by requiring that it convert the wide pulsations of batch operation to continuous. This will reduce the effectiveness of the first 5 or 10 ft. of the dryer's length. The extreme difficulty of delivering highly ammoniated batches of fertilizer through a sealed feed uniformly in a continuous flow to a dryer has added greatly to the popularity of continuous ammoniators.

Much of the effectiveness of even these devices is too often lost through faulty delivery into the dryer, usually from large air leaks. In some cases for reasons of economy or lack of space, no combustion chamber is provided and some portion of the dryer is used to mix the cold air with the very intense heat of the burners. When all of these factors prevail in the same dryer, which may also be quite short, there is not much space or capacity left to influence granulation or to hold that which may have been started elsewhere.

Some dryers are now 60 or 70 ft. long and regularly yield a quality product with several formulae at fair tonnage. Some co-current (parallel) flow dryers are so large that conservative tonnage is handled at such low temperature of product (120° F. discharge) that no cooler is required and screens are present only as insurance against the system running amuck.

The indiscriminate recycling of fines as fast or as slow as they are made has caused untold misery since any fluctuations throw the system into erratic performance. Even locally improvised arrangements for regulating the amount of fines that return to the process are very rewarding.

Quite a few systems employ two rotary dryers and two coolors with one continuous batch ammoniator. Unless the dryers particularly are operated as individual units, serious consequences will quite probably result. After six months, the operators of several of these systems did not know the screen size analysis nor the moisture content of the discharge material of each of the dryers although good data had been collected on the composite product. As the product from one unit reached the conveyor belt, it was found to contain about twice the moisture of the product from the other dryer. The composite sample from the discharge end of the belt contained a fairly safe amount for the local conditions but only if it had been uniform throughout the storage pile. Serious disintegration took place in the large pile.

At the cost of some tonnage, there is a trend toward reducing the number of large particles in the finished product. Few plants now use a 3 mesh screen and some are tentatively going to 6 mesh, and 8 mesh is being considered in some cases as the largest size permissible. In the total screened sample some granulated fertilizer that contained only 1.5% moisture was found to have nearly 4% in the largest screened particles. This may contribute to bag setting, granule disintegration and to faulty performance through the farmers' equipment.

Most granulated fertilizer contain from 20 to 35% of its weight in the large particles that are subject to suspicion. The simple, direct approach of using less water to avoid forming the coarse particles usually results in excess fines, another source of trouble in making and in selling the product. The present practice of milling the oversizes is probably the most suitable, but the equipment for doing this will be quickly overloaded if its burden is greatly increased.

In one plant, all ingredients were ground to quite a fine mesh ahead of mixing to control the final size of the particles. It is probably because several factors in addition to the size of the original ingredients have their influence on final particle size that this practice is not widely used.

High analysis goods are inviting serious consideration of phosphoric acid as far as it can serve a purpose. In the field not enough of this has been practiced to be conclusive regarding its influence on granulation. The evidence so far is that it does not detract from the effectiveness of the usual granulating system.

Fumes and dust are the subject of much work in the industry and they are as much a concern from the standpoint of economic losses as of immediate safety and air pollution. Some plants face the expenditure of nearly as much for dust control as was originally spent for granulation.

Fires in fertilizer mixers continue to be a serious concern although it is gratifying to learn of the success many have had in controlling them, once it was realized that something could be done on the spot to control them.

In batch operations considerable control of fires as well as of dust and fumes is obtained by adding the muriate of potash after any acid is added and neutralized by the ammoniating medium. Some manufacturers use anhydrous ammonia separately but in the same formula with nitrogen solution and acid. Here the acid in batch operation can be prevented from acting on either the muriate of potash or the ammonium nitrate by withholding them from the batch until the anhydrous ammonia has neutralized the acid. Thereafter the potash is added and ammoniation with the nitrogen solution may proceed in the normal manner.

Some things which now are barely discernible in the firmament will doubtless be recognized as important developments perhaps even before this group meets again. Of the developments discussed, some of the following crept inauspiciously into the granulating industry while others have enjoyed the fanfare of a visiting fireman:

Consideration of the characteristics of materials that influence the granulating potential including the formation in the mix of additional products such as through the use of acid and possibly variation of temperatures.

Improving storage and application properties through more uniform particle size with emphasis on reducing the amount of coarse sizes and more uniform moisture content. Coating is under consideration for some cases.

Continuous operations including recycling, sampling and ammoniation.

Excess ammoniation at a calculated loss of ammonia without the use of acid.

The use of acid beyond the requirements for neutralizing the uncombined ammonia for the added heat and other influences on granulation.

Control of fires related to the use of acid.

Fumes and dust involving economic loss as well as air pollution.

Refinements of control by personal skills and instrumentation, particularly in the double granulating units which use only one mixer and ammoniator.

Means for delivering the highly ammoniated mass to the dryer at maximum temperatures by direct delivery from the ammoniator to the dryer, if necessary.

The use of materials for purposes other than for plant foods such as acid, steam and hot water.

Provision for drying under conditions that are more favorable to granulation than has existed where the dryer has been operated almost exclusively to obtain maximum drying capacity.

There is yet much land to be possessed.

*Presented at Fertilizer Industry Round Table, Shoreham Hotel, Washington, D.C., October 18, 1956.

WORLD REPORT

By GEORGE E. SWARBRECK
Croplife Canadian and Overseas Editor

Concurrent with the projected growth of the fertilizer industry in Venezuela (Croplife, Oct. 22, page 18) the government is encouraging young men to train for plant management, purchasing, production, transportation, selling, distribution, accounting and administration.

The training of technicians presents the most complex problem. Some of the more important technical positions have to be filled by foreigners right now, but the idea is to replace them with Venezuelan technicians in the future. To this end, more than 50 young men have been sent to plants in Italy, Spain, the U.S. and Western Germany. In Italy alone 37 men are training in fertilizer plants.

Foreign suppliers of equipment for the fertilizer industry have taken in young men as trainees so that they may become acquainted with the equipment they will be called upon to operate.

The government also plans to establish schools for the training of workers in the new industry. A most important adjunct to the project is the Evaluation Center which is already functioning; this is doing research work and will "stimulate the development and application of technical methods for the best utilization of natural resources towards the industrialization of the country."

Controlling Nematode

British experiments to control nematode by building up concentrations of fungus in the soil are reported to be showing promising results.

Researchers have discovered that certain types of fungus also present in the soil, and known as predacious fungi, can trap, kill, and then digest these farming pests. Scientists are aiming to build up the concentration of fungus in soil known to be infested with nematodes and thus ultimately control or destroy the pest itself.

Fungi trap nematodes in a number of ways. Short branches of the fabric of the fungus can join up to form a sort of meshwork. These branches are sticky and nematodes are caught as they move about the soil. In other cases nematodes are caught in a ring formed by the fungus structure; when so caught they are killed and digested.

Field experiments have provided useful results, the research men at London's Polytechnic report. One potato ridge in a field affected by nematode was treated with manure, another with fungus added to the manure. An untreated row produced 21 lb. of potatoes; the row treated with manure only 41 lb., and that receiving both manure and fungus 78 lb. Promising results have also been achieved with crops of peas and cereals.

Fertilizers in Canada

Western farmers are vitally concerned with the conservation of their soils, and in maintaining them in a state of high productivity or fertility, states Dr. F. J. Greaney, director, Line Elevators Farm Service in Winnipeg, Canada. For many years there has been much talk, he said, of how the prairie soils are being depleted and ruined through careless management and intensive cropping. In general, he said, this criticism is justified.

Today, however, most farmers, through improved soil management, are doing a great deal to maintain the fertility of their soils. A point of importance here, Dr. Greaney said, is the fact that more and more evidence is accumulating in Western Canada to indicate that soil productivity may actually be increased even under intensive cropping through the proper use of fertilizers, combined, of course, with good farming practices, including the growing of grasses and legumes.

Dr. Greaney pointed out that the chemical fertilizer industry is but a little over 100 years old. During this period, and more particularly in the last 30 years, tremendous advances have been made in the manufacture and technology of mineral fertilizers, and also in the development of information relative to the proper use of fertilizers for the most efficient production of crops.

Since 1940, the use of fertilizers in Western Canada has increased enormously, Dr. Greaney said. Field experiments and practical farm experience have shown that in many districts in each of the prairie provinces fertilizers can contribute substantially to increased grain crop production. Although the introduction of improved varieties, the development of better methods of controlling weeds, plant diseases and insect pests, and the use of improved soil management practices generally will continue to contribute to increased crop production in Canada, it is very doubtful if, in the years ahead, any single farm practice will contribute more to grain-farming efficiency, and the over-all economy and prosperity of prairie farmers than will the increased use of commercial fertilizers, Dr. Greaney stated.

Locust Threat

Desert locusts are breeding on a large scale in the Sudan and the French Chad territory of Africa. They are a threat to many parts of the Middle East and to the African territories in the line of potential flight.

The Anti-Locust Research Center in London fears that this situation may lead to a "general recrudescence of the locust plague." Officials say that large swarms of the new generation have already appeared and more can be expected to develop in the next few weeks. In immediate danger are Egypt, Libya, Israel, Jordan, Western Arabia and northern Ethiopia. Locusts also threaten West Africa, southern Algeria and Morocco.

Control officials say that the lack of finance to provide aircraft, equipment for spraying and insecticides retards their efforts in beating back the threatened attacks.

NEW ENTOMOLOGIST

RIVERSIDE, CAL.—Andrew S. Deal, formerly Imperial County farm adviser, has been named extension entomologist by the University of California.

PASTURE FERTILIZATION UPS MILK YIELD

Farm Costs and Returns for Farm A and Farm B Associated with two Levels of Pasture Fertilization

	Farm A		Farm B	
	Quantity	Dollars	Quantity	Dollars
Income while on pasture				
Milk	164,108 lbs.	$6,870	130,494 lbs.	$5,390
Higher income for Farm A		$1,480		
Costs while on pasture				
Grain	18.3 tons	$1,465	14.0 tons	$1,120
Fertilizer	6.7 tons	$ 435	2.9 tons	$ 190
Spread fertilizer				
Labor	33 hours	$ 33	20 hours	$ 20
Machinery	33 hours	$ 17	20 hours	$ 10
Total cost of grain and fertilizer		$1,950		$1,340
Higher costs for Farm A		$ 610		
Net income above grain consumed on pasture and fertilizer used on pasture		$4,920		$4,050
Higher net income for Farm A		$ 870		

PASTURE FERTILIZING PAYS OFF—The above chart, prepared by George E. Frick, agricultural economist of USDA, was presented as part of his talk before the Sept. 12 New England Fertilizer Conference, Melvin Village, N.H. Designating two similar dairy farms as "A" and "B", he compared the incomes from each as associated with the amounts of fertilizer applied to pastures. Farm "A", with more than twice as much fertilizer applied than was put on the pastures of farm "B", realized a higher net income of $870, Mr. Frick declared. These figures were obtained in actual tests on comparative farms, he said.

★ ★ ★

ADDED PLANT FOOD MAKES PASTURE PAY

	Increase	Value	Fert. Cost	Net Gain
L	.23	5.75	2.00	3.75
P	.33	8.25	8.00	.25
K	.62	15.50	3.75	11.75
PK	1.11	27.75	11.75	16.00
LPK	1.75	43.75	13.75	30.00
LNPK	2.15	53.75	15.75	37.60

Hay figured at $25.00 Ton.
Lime at $10 Ton, 1/5 allocated to each year.

PLANT NUTRITION PAYS—The above table, prepared by F. S. Prince, University of New Hampshire agronomist, was presented as part of his talk at the Sept. 12 New England Fertilizer Conference, Melvin Village, N.H. Close study of the chart shows the economic importance of applications of lime, phosphate, potash and nitrogen in various combinations. Of particular interest is the manner in which the net gains multiply with combinations of materials as compared to the application of single elements.

For instance, lime (L), phosphate (P) and potash (K) applied separately in the tests, totaled a net gain of $15.00, yet, the combination of all three, applied together, registered a $30 gain.

These tests were made with alfalfa-timothy, with hay figured at $25 a ton and lime at $10 a ton, 1/5 allocated each year of the 5-year test.

UP . . UP . . UP

WASHINGTON — There's litt need to fear the number of perso available to consume products of U.S farms will decline very soon, accord ing to estimates of the U.S. Bureau of the Census. The nation's popula tion passed 168 million in July, ac cording to preliminary estimates o the bureau. If the figures are cor rect, the U.S. population is expand ing at the rate of 7,200 persons day. That means it will soar to 17 million in 1960, to 190 million in 196 to 200 million by 1970 and close t 213 million by 1975.

California Fiscal Year Sales Top Million Tons for First Time

SAN FRANCISCO—Californi farmers purchased over a million ton of fertilizer during the fiscal yea 1955-56 for the first time in histor for a comparable period.

The Bureau of Chemistry of th California State Department of Agri culture reports sales amounting t 1,001,554 tons from July 1, 1955, t June 30, 1956, compared to 930,46 tons for 1954-55, the previous high fo state fertilizer sales.

Dry mixed fertilizers accounted fo 208,231 tons to pass ammonia solu tion 20-0-0, the highest ranking ferti lizers for the last two years. Am monia solution 20-0-0 sold 199,96 tons to capture the second spot. Am monium sulfate was the only othe fertilizer to sell over 100,000 tons This fertilizer sold 140,088 tons which was over twice the tonnage of th fourth ranked fertilizer.

The top ten were completed by th following fertilizers: anhydrous am monia, 68,002; normal superphos phate, 62,798; ammonia phosphate sulfate 16-20-0 registered, 59,504; am monium nitrate, 51,866; liquid mixe fertilizers, 46,023; calcium nitrate 29,085; urea, 18,592.

The top four dry mixed fertilizer sold over 33% of all fertilizers in thi category. The individual leader wa grade 10-10-10 which accounted fo 20,537 tons. The other three top sell ers were grades 10-10-5, 17-7-0, an 8-8-4.

Agricultural minerals recorded fractional drop from 712,967 for th previous fiscal year to 693,483 for th fiscal year ending June 30, 1956. O this total, gypsum sales accounte for 575,137 or over 85% of the tota for agricultural minerals.

Diamond Sales, Earnings Hit All-Time High

CLEVELAND—Sales and earning of Diamond Alkali Co., Cleveland, fo the first nine months of 1956 ende Sept. 30 attained new all-time level Raymond F. Evans, chairman an chief executive officer, has reported.

Net sales of Diamond chemicals fo the current nine months ended Sep 30 totaled $92,040,457 compared wit $83,115,419 a year ago, representin an increase of 11%.

Net income for the first nin months of 1956 amounted to $8,032 702 against $6,255,846 for the sam period in 1955. This is equivalen after preferred stock dividends, $3.05 per common share on 2,611,74 shares outstanding, and represents gain of 28% over the previous high 1955 of $2.37 per share computed the same number of shares.

Third-quarter 1956 net sales tot ed $30,137,507 against the form third-quarter peak of $29,303,595, a gain of 3%. Net earnings for t third quarter of the current ye amounted to $2,482,431, or $.95 p share on 2,611,740 shares, compar with $2,210,273, or $.85 per share f the corresponding 1955 quarter. Th represents a gain of 12%.

Reader Views

To the Editor:

We would like to take this opportunity to express our appreciation for the write-up in the Oct. 8 issue of Croplife on the series of fertilizer meetings that we recently conducted in Georgia. These meetings were more successful than we anticipated when they were first initiated. We found that dealers are eager for factual, basic information on fertilizer know-how when it is presented to them in easy-to-understand terms and with the use of well-prepared charts and graphs.

The excellent cooperation that we received from the Georgia Plant Food Educational Society greatly added to the success of these meetings. Also, the publicity given each meeting by Georgia newspapers, farm journals and radio stations contributed to the success the program achieved.

We are very much aware that our educational program on lime and fertilizer in Georgia depends largely on the participation of the fertilizer industry and especially the fertilizer dealers. To assist fertilizer salesmen in acquainting farmers with the opportunities for more efficient use of lime and fertilizer, we are planning to conduct a three-day short course in August 1957.

Ralph L. Wehunt and P. J. Bergeaux, extension agronomists, University of Georgia.

Dow Sales Show Gain in Quarter

MIDLAND, MICH. — The Dow Chemical Company Oct. 15 reported net sales of $150,784,025 for the first quarter of its fiscal year ended Aug. 31. This compares with $128,166,671 recorded in the same months of 1955.

First quarter earnings were $11,275,315 as compared with $11,723,647 in the 1955 period while earnings before taxes were $20,165,104 as against $21,493,856.

The net for the quarter amounted to 47¢ per share of common stock outstanding as against 51¢ in the same quarter of 1955. U.S. and foreign income taxes were $8,889,789 compared with $9,770,209 while depreciation and amortization totalled $20,186,766 against $18,743,000 in the previous year.

At the end of the quarter the company had 24,038,517 shares of common stock outstanding compared with 22,778,324 on Aug. 31, 1955. Dow's Texas Division was shut down by a strike for a period of approximately five weeks during the quarter.

Phosphorus, Nitrogen Pay Off in Test

SACRAMENTO — A cooperative project of the California Agricultural Extension Service and rancher Jack Lewis of Elk Grove, Cal., shows that phosphate fertilizers plus nitrogen give the greatest production increases in irrigated pasture.

Glenn Goble, Sacramento County farm adviser, said that with the season slightly more than half gone all fertilizer applications except 150 lb. of nitrogen alone had paid for themselves.

Applications as heavy as 150 lb. of nitrogen and 80 lb. of phosphate had produced an extra ton and a half of dry hay per acre at a cost of $20.30 per ton.

MISSISSIPPI CONFERENCE

BILOXI, MISS.—The 1956 Mississippi Fertilizer Conference will be held Oct. 31-Nov. 2 at the Buena Vista Hotel here.

Entertainment Program Announced for Anhydrous Ammonia Meeting

ATLANTA—Bob Evans, former director of the Miss America Pageant, will be in charge of entertainment at the sixth annual convention of the Agricultural Ammonia Institute here Nov. 7-9.

Also to occupy leading entertainment roles are Miss Cherie Bowers, Miss Arkansas of 1955; the Fantasy Models, four beautiful talented girls; A. F. Thomas, Jr., pantomimist of television and New York stage; Lavon and Linda Helms, teen-age brother and sister rock and roll artists, and Delores Jardine, accompanist.

The convention, which will attract approximately 1,000 ammonia distributors, producers and equipment manufacturers from throughout the nation, will bring to Atlanta some of the nation's leading agricultural authorities.

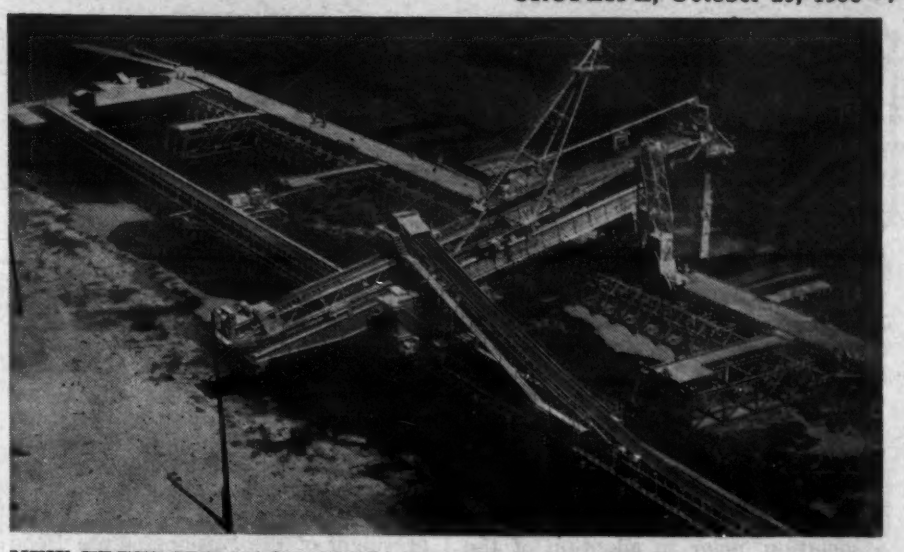
The Agricultural Ammonia Institute is headed by Maj. Gen. Ralph H. Wooten, (U.S. Air Force, Ret.), who is with the Mid-South Chemical Corp. in Memphis.

Other leading authorities who will take part in the three-day program at the Atlanta Biltmore are Dr. D. R. Dodd, chairman emeritus, agronomy department, Ohio State University; W. R. Thompson, pasture authority, Mississippi State College; George Rogler, research agronomist, U.S. Department of Agriculture, J. Richard Adams, senior chemist, USDA; Dr. Byron T. Shaw, administrator, Agricultural Research Administration, USDA; Dr. Kenneth McFarland, General Motors Corp.; Max Fetty, Delta Tank Mfg. Co., of Baton Rouge, La.; Dr. C. C. Murray, dean of agriculture, University of Georgia, and J. G. Futral, head of the Georgia Department of Agriculture.

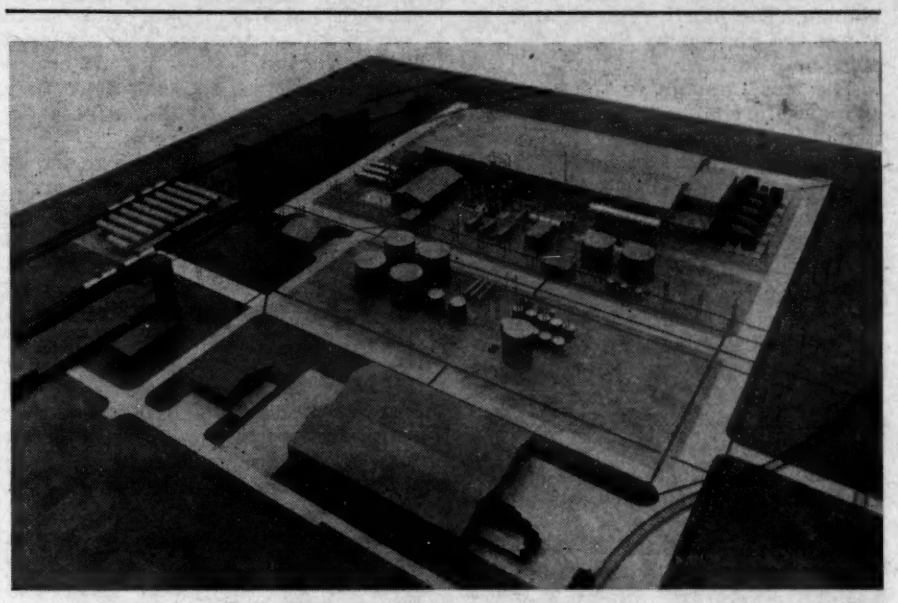
Commercial Solvents Sales Show Gain

NEW YORK—Commercial Solvents Corp. reports for the quarter ended Sept. 30, 1956 consolidated net earnings of $435,019 equal to $.16 a share on 2,636,878 shares. Sales for the quarter were $13,840,870, representing an increase of 6% over the previous year.

Consolidated net earnings for the nine months ended Sept. 30, 1956 were $2,007,862 equal to $.76 a share, compared with $.79 the previous year, including $.12 non-recurring income. Sales for the nine months were $41,315,356, showing an increase of 8% over 1955.



NEW FREEPORT FACILITIES—Freeport Sulphur Co. has placed in operation new dock facilities at Port Sulphur, La., designed to cut by one-half the average loading time for ships and barges. A ship loader has been installed on an extension of Freeport's Mississippi River dock at a cost of over $1,000,000. This is the second part of a planned expenditure of $5,000,000. The new loader, designed by Hewitt-Robins in collaboration with Freeport engineers, operates entirely by remote control. The loading operator, from his station on the deck of the ship, is able to move the loader and chute and control the ¾-mile conveyor belt system by means of a foot-square panel of buttons. The machine travels a distance of 400 feet on two sets of double rails and moves from one ship's hold to another in less than 5 minutes as contrasted to a half hour or longer if the ship had to be moved. The discharge chute, made to "throw" the sulphur 20 feet in any direction, shuttles out to 45 feet from the dock and can clear an elevation of 54 feet.



DIAMOND ALKALI PLANT—Shown above is a block model of the chlorine—caustic soda production expansion project at Diamond Alkali Co.'s Deer Park Plant at Houston, Texas, recently announced by Frank Chrencik, general manager of the firm's electro chemicals division. Working with Wyatt C. Hedrick Corporation, Houston, design contractors, Diamond engineers already have completed basic engineering for the multi-million-dollar program. Construction is expected to start soon. When completed and put on stream during the first half of 1958, this new plant addition will produce 200 tons of chlorine, 220 tons of caustic soda, and 2-million cubic feet of hydrogen per day. Principal equipment units embraced by this expansion are shown above. Modern rectification facilities appear at right of cell building (large structure in background). Brine processing facilities appear in right foreground.

T. H. Bacon

C. W. Ingham

E. H. Pyle

RAYMOND APPOINTMENTS — Appointments in the Raymond Bag Corp., multiwall bag division of Albemarle Paper Manufacturing Co., have been announced by J. R. Clements, vice president of Raymond. T. H. Bacon has been named assistant sales manager, with offices at Middletown, Ohio; C. W. Ingham, director of research and development, and E. H. Pyle, packaging engineer, both headquartering in Chicago. D. F. Wicks is eastern district sales manager in New York; T. B. Athey, mid-Atlantic district sales manager in Baltimore; S. G. Shetter, central district sales manager in Middletown, and R. W. Drury, Jr., western sales manager, Kansas City.

FERTILIZER CONTROL OFFICIALS

(Continued from page 1)

the Extension Service Committee on Organization and Policy.

As part of the basic research in connection with the new model bill, a questionnaire has been sent to extension agronomists and horticulturalists to get their reaction to changing to the elemental basis and an indication of how long they estimated it would take to make the change in the several states.

In view of the unanimous adoption of the model bill, it is now interesting to note these findings, as reported by Bruce D. Cloaninger, Clemson, South Carolina, secretary-treasurer of the association, prior to adoption of the bill.

In a special report, he noted that 40 states and one territory were contacted with replies from 42 extension horticulturalists and 82 extension agronomists. The horticulturalists and agronomists were equally divided in opinion nationally, with the results of both groups averaging 3 to 1 in favor of the change.

The higher percentage favoring no change came from the northeastern and southern states. However, in these areas 2 to 1 were in favor of change. The north-central area favored the change by 6 to 1 and the west by 3 to 1.

The least amount of time required to make the change in states was estimated in a range from 0 to 10 years, with the average at 3 years.

Opinion as to the number of years advisable to have both methods of labeling on the bags ranged 0 to 10 years, with an average of 4 years.

Most of the replies indicated that both forms of labeling should appear on the fertilizer bags for 2 to 5 years before making a complete change to N-P-K.

Prior to the final association action on the model bill a voice of caution and counsel against speedy action on the change was given by Dr. W. F. Price of the plant food division of Swift & Co., Chicago.

In an address entitled "Reducing the Oxides," he indicated that many concerned with the distribution of fertilizer were totally unaware of the considered change, and intimated there "will be some opposition."

He urged the control officials to make certain there was enough support in each state to get the change accepted and "thus avoid what might occur if states opposed it." This speaker saw possible "chaotic conditions" if it were not widely accepted.

Dr. Price sought reaction at the farmer and distributor levels, pointing out that changeover to the elemental basis would require a major educational campaign. He noted that only two states could make the change without changing the laws.

Problems in sampling commercial fertilizer were covered in a paper presented by Dr. F. W. Quackenbush, Indiana state chemist, Purdue University, Lafayette, Ind. To illustrate the importance of this work, he noted that the National Plant Food Institute task force was putting sampling problems on top of its list of tasks to be undertaken.

In connection with bulk pile sampling and analysis he stated that it would seem possible that much work could be saved with a more systematic approach to the whole matter. He noted lack of systematic studies, stating that "in many cases dozens or perhaps hundreds of different 'lots' are shipped from the same bulk pile."

Dr. Quackenbush called for better equipment for reducing a sample in a single operation, and said that the use of riffles, objectionable because of the amount of dust, are especially important for the states in which inspectors reduce samples in the field.

He stated that there seem to be no fundamental problems in sampling of fertilizer solutions of the various types, pointing out that it requires "properly designed equipment and use of good sense in taking the samples and especially in handling them after they are taken."

In conclusion he called for clearly defined official methods in the AOAC publication, and stated that "it is my impression, however, that our biggest problems lie in the sampling of dry products."

Dr. Russell Coleman, executive vice president of the National Plant Food Institute, Washington, presented a color film prepared by NPFI, titled "What's In The Bag?" The film is concerned with nitrogen, phosphate and potash production and graphically illustrates the large capital investment in the industry.

In prefacing remarks, Dr. Coleman noted that capital investment was probably the greatest for any industry doing a $1 billion business.

In the presidential address, Dr. M. P. Etheredge, State College, Miss., saluted industry large and small "which makes America." He reviewed the background of large American industrial firms, showing how they had grown from small business organizations.

Another salute to American industry was made by Hugo Riemer, president, Nitrogen Division, Allied Chemical & Dye Corp., New York, in an address titled "Industry Is Serving the Public Interest."

In the address he viewed profitable free enterprise as "the essence of true democracy." He stated that through industry America boasts of a better standard of living than any other country in the world, with industry providing cultural, religious, production, education and leisure facilities.

He stated that industry is constantly looking for new and better products for the public good and offers unlimited horizons for any worker in the field of his interest.

Referring to the fertilizer industry, he stated that the fertilizer salesman must carry the story of the need of the farmer to use more fertilizer, viewing this as a problem of education.

Functions of the land grant colleges were outlined in an address by Dr. R. F. Poole, president of Clemson Agricultural College, Clemson, S.C. He referred to the institutions as "another one of the wonders of the world," saluting them for their work in educating youth in agriculture.

He viewed with alarm the inclination of American youth to lose interest in agriculture in favor of engineering and science, and appealed to the fertilizer officials for their support and the support of other groups they could influence to interest youth in agriculture.

This speaker indicated that one of the functions of the land grant colleges was to encourage better yields of better quality products. In this connection he noted that there is insufficient usage of fertilizer throughout the U.S. to produce more crops and stressed the need to step up quality in the southland.

The luncheon session featured an address by Dr. Paul Sanders, editor of the Southern Planter, Richmond, Va., who used as his title, "Agriculture's Role In the American Story."

In the address he cited the steady increase in population and constant movement of people, tracing the increase and trends to and from the farm from pre Civil War times up to date.

Dr. Sanders presented a plea to keep our farm population strong, stating that "this country is not going to gain all happiness and satisfaction by crowding all of our people into our big cities and industrial areas with their tenement sections, social unrest, crime and juvenile delinquency."

Touching on the increase in farm efficiency, he noted that it had released population for industry and helped to make this the greatest industrial nation in the world. This industrial might of America has been built upon "an ever-increasing efficiency in farming to which the plant food industry has made the major contribution," he stated.

In conclusion he stated that "as a nation, we must strive to breathe the breath of economic life into the rural community, keep a large and prosperous population on farms and in villages and small towns throughout this great land in which we live, preserve our rural heritage upon which this nation has grown great, reforest our timberlands, convert our eroded rundown hillsides into verdant pastures with 'cattle grazing upon a thousand hills.'"

J. D. PATTERSON HEADS CONTROL OFFICIALS

WASHINGTON — J. D. Patterson, Salem, Ore., was elected president of the Association of American Fertilizer Control Officials at the tenth annual convention of the group held in Washington, D.C., Oct. 19. He replaces M. P. Etheredge, State College, Miss., who received the annual "presidential plaque" at the close of the meeting in recognition of his work for the association. J. J. Taylor, Tallahassee, Fla., was named vice president and Bruce D. Cloaninger, Clemson, S.C., was reelected secretary-treasurer. Elected to the executive committee were F. W. Quackenbush, Lafayette, Ind., chairman; S. B. Randle, New Brunswick, N.J.; Charles Marshall, Ottawa, Canada, and E. A. Epps, Jr., Baton Rouge, La. The president, vice president, secretary-treasurer and retiring president are ex-officio members of the committee.

Rain Peps Up Winter Cover Crops In Mid-South States

MEMPHIS—Dreary, dripping skies spelled a bright outlook for Mid-South farmers last week. Rain over most of the area brought temporary relief from drouth conditions and lessened forest fire hazards.

Reports from extension service officials in Arkansas and Mississippi showed the showers helped small grains and winter cover crops. Tennessee had a few light showers but the former two states had good steady soaking showers.

The harvest of cotton, corn, rice and soybeans continued at a good pace before the rains came.

The generally good rainfall gave a new complexion to the Arkansas crop picture. The rain was expected to produce sproutings of winter cover crops. It also would give a boost to crops still needing some moisture for late fall growth.

Scattered rains over much of Mississippi temporarily relieved the growing drouth conditions, the Mississippi Extension Service reported.

Small grains planted for winter grazing greatly benefited from available moisture, W. R. Thompson, pasture specialist famed as "the pasture man," said. Planting with sod seeding machines in permanent pasture sod continued.

Cotton harvesting in Mississippi was about 80% complete, T. M. Waller, cotton specialist, said. He added grades have held up well but ginning has slowed down as the picking season nears its end.

Commercial Corn Producing Area Expanded for 1957

WASHINGTON—The U.S. Department of Agriculture Oct. 22 designated 893 counties in 24 states as the commercial corn-producing area for 1957 as required by law. The designated area for 1957 includes one more state than in 1956 and 53 additional counties.

In determining the commercial corn-producing area in 1957, counties were selected on the basis of (a) those having an average production of corn (excluding corn used as silage) during the preceding 10 calendar years (1947-56), after adjustments for abnormal conditions, of 450 bu. or more per farm and 4 bu. or more per acre of farmland in the county, and (b) those counties bordering on the commercial corn-producing area in which there is a minor civil division likely to produce the above amounts of corn in 1957. This formula indicates that all counties included in the 1956 area will be included in 1957 plus 53 additional counties.

Price support and the acreage reserve of the soil bank will be in effect in the 1957 commercial corn-producing area. The permitted levels of price support and whether or not corn base acreages or corn acreage allotments will be in effect in the commercial area will depend on the outcome of a producer referendum required by law not later than Dec. 15, 1956.

None of the counties or states included in the 1956 area were dropped for 1957. Georgia was added. The additional 53 counties for the 1957 area by states follow:

Alabama—Cherokee, Etowah, Morgan, Limestone.

Arkansas—Mississippi.

Georgia—Berrien, Brooks, Bulloch, Candler, Colquitt, Cook, Emanuel, Evans, Lowndes, Screven, Tattnell, Tift, Toombs, Wayne.

Indiana—Brown, Crawford.

Kentucky—Green, Muhlenberg, Ohio.

Maryland—Baltimore, Harford, Howard.

Minnesota—Isanti, Mille Lacs.

Missouri—Morgan.

New Jersey—Middlesex, Monmouth, Ocean.

North Carolina—Columbus, Hyde, Harnett, Tyrrell, Robeson.

Ohio—Athens, Columbiana, Mahoning.

Pennsylvania—Monroe, Delaware.

Tennessee—Bedford, Carroll, Coffee, Grundy, Lake, Lincoln, Moore, Sequatchie, Warren.

Wisconsin—Waupaca.

Cotton Quota

WASHINGTON — True D. Morse, acting secretary of agriculture, Oct. 15 proclaimed a national quota of 76,565 bales (standard bales of 500 lb. gross weight) and a national acreage allotment of 89,357 acres for the 1957 crop of extra long staple cotton. This compares with a national marketing quota of 35,300 bales and a national acreage allotment of 45,305 acres for the 1956 crop of extra long staple cotton.

TEXAS DROUTH

COLLEGE STATION, TEXAS—Records from the 27 agricultural experiment stations and field laboratories of the Texas A&M College System show that none received normal rainfall for the crop year, Sept. 1, 1955 through August, 1956 and several got less than half their normal fall. Statewide, A. H. Walker, extension range specialist, says this is the worst drouth situation in history because most areas in the state have had several years in succession of below normal rainfall.

Special Retail Section

Better Selling

Richer Fields for Dealers

A SPECIAL CROPLIFE DEPARTMENT TO HELP RETAILERS IMPROVE MERCHANDISING KNOW-HOW

Pennsylvania Dealer Builds Sales by Doing Good Selling Job in Limited Trading Area

By PHIL LANCE
Croplife Special Writer

By concentrating on the customer potential within a 10 mile radius of its location, the E. H. Gerhart Co., Jonestown, Pa., can hold its customers against "all comers" and enjoy a handsome fertilizer business year in and year out.

"By concentrating in this area, our overhead is cut to a minimum," explains William F. Franklin, firm manager. "This means that we can work on a lower profit margin that makes us as competitive in price as anyone. More than that, our closeness to the customer is taken into consideration because they can buy fertilizer in whatever quantity they desire, either having us make the delivery or coming for it themselves."

Many years ago, this dealership decided to consolidate its holdings upon its customers because it was found to be far more profitable to serve the same customers season after season thus always having a turnover. In the latter case, it is possible to get a better price for fertilizer, but the increased profits are eaten up in salesmen's commissions, promotional efforts and advertising. So the Gerhart company felt that it had enough business to draw on right in its own backyard without going too far afield.

"The fertilizer business is very competitive in central Pennsylvania, with dealers from several other counties coming here to do their selling," says Mr. Franklin. "And in many cases, the farmers themselves go to the source of manufacture to make their own pickups. So in order to compete pricewise, we have to cut our overhead. And in so doing we are still enjoying a nice profit on each sale."

The firm has salesmen that contact all the farmers in the 10 mile radius for feeds and other farm supplies. So while they are at it, fertilizer gets a major plug. The salesmen talk up fertilizer all year long so that when the time for its application comes along, this firm already has its foot in the door. But, Mr. Franklin explains, that contact means nothing to a customer who can get it for less elsewhere, which is a very important reason for holding down overhead.

"We only stock a limited supply of fertilizer in our warehouse to handle immediate sales," says Mr. Franklin. "Because of our closeness to a couple of manufacturing outlets, we accumulate our orders until we have truckloads at a time to deliver. Then we go straight to the fertilizer manufacturer, load up and make deliveries to our customers. Usually, our trucks return to our mill empty. This naturally has its effect upon handling and storage costs which means a better price to the customer and our usual profit to our company."

Some time ago, this dealer became keenly interested in liquid fertilizer and in an effort to promote it to his customers, obtained the necessary spraying equipment. But the farmers are a hard lot to convince in central Pennsylvania, and it just didn't go. Local farmers believe in tried and tested products and it's hard to convince them on the merits of any other. So rather than try to overcome a situation, this dealer decided to concentrate on his dry fertilizers.

"We also bought a spraying rig for the spraying of weed killer," Mr. Franklin said. "This went over fairly well. We operated at a flat charge of $3.50 per hour plus the liquid weed killer and the first season we kept busy. Then this began to wear off with the farmers who really had need of this service, buying their own equipment, so we disposed of the rig. But it did help us to introduce our liquid weed killers and we are still enjoying a sizeable turnover of this particular product."

Corn, oats, wheat and barley are the most popular items raised in this area. A 3-12-6 fertilizer was always

(Continued on page 12)

PENNSYLVANIA DEALERS—Henry E. Gerhart, left, and Henry B. Gerhart, right, officers of the E. H. Gerhart Co., Jonestown, Pa., have built a successful retail business on a formula of concentrating on a limited trading area and cutting overhead to be competitive pricewise. In the center above is the operator of the spray rig.

SHOP TALK

OVER THE COUNTER

FOR THE DEALER

By EMMET J. HOFFMAN
Croplife Merchandising Editor

"Be consistent in your advertising. When you find a good thing, do it over and over again. And if you as dealers don't act locally, it is impossible for your producer—regardless of his promotional efforts—to stay in business."

That was the message brought to members and guests at the 1956 annual meeting of the National Fertilizer Solutions Assn. at Sioux City, Iowa, by John D. Waugh, director of advertising, Nitrogen Division, Allied Chemical & Dye Corp.

"It's important to choose one name in promoting your firm," Mr. Waugh emphasized, "and that name should be used big and bold, over and over again."

A consistent program of this type will "burn in" the name you choose, Mr. Waugh said. As proof of its effectiveness, he pointed to his own firm's promotion of the Arcadian name.

"Three years ago there was no such trade mark. A recent survey showed that three million American farmers now recognize it."

Mr. Waugh stressed the importance of using all of the producer's sales aids. He continued:

"This material is valuable—it costs a lot of money to produce—and all of the effect of the national advertising is lost if the dealer doesn't do his part.

"A dealer must select his own media. Market studies are invalid if a dealer doesn't do his own research. The dealer must know his own area, its potential, and the media which will reach his market.

"The theme for a local campaign must be set by the dealer. The profit theme is important today.

"It must be emphasized that if not enough fertilizer is used, the yield will not be increased enough to make the application profitable. This same principle applies to dollars invested in advertising.

"And selling fertilizer has its own special problems.

Fertilizer is a Mental Concept

"Fertilizer is a mental concept. It's not a durable product like a tractor. Farmers like machinery and a big, red tractor will attract their attention. This isn't true of fertilizer. The farmer doesn't like—or doesn't appreciate—fertilizer," Mr. Waugh said.

Mr. Waugh added that fertilizer, being of seasonal interest, doesn't occupy the farmer's mind the year around. He feels that an attractive place of business is an important asset. He went on:

"We have one dealer in the South who illustrates this point. His firm has moved twice as much solution as any other in the area. He's located on a busy highway and he keeps his red and white buildings freshly painted. He keeps his trucks and applicators lined up."

Mr. Waugh urged dealers to adopt an attitude of aggressive optimism. He said:

"You must have a belief in your product through lean as well as good years."

Mr. Waugh outlined the basic principles of advertising and named the

(Continued on page 15)

By RAYMOND ROSSON
County Agent, Washington County, Tenn.

Vote for the man of your choice next week . . . we'll do just that, but in addition to that, we are going to vote for organized communities among our farm people.

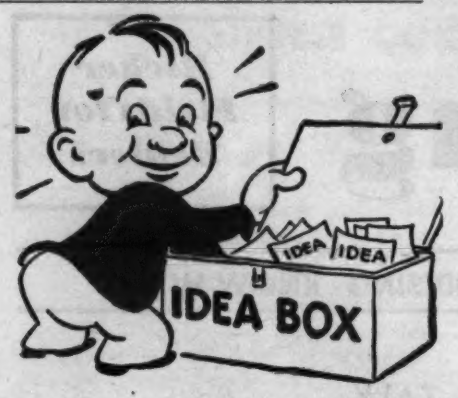
We helped organize one community into a "Community Club" back in 1938, and that community is going good until this day. Since then we've organized some twenty odd farm communities in our county.

Community clubs have helped farming "grow up," and it didn't sprout over night. It took time and the last two decades made the difference. The individual of any community can solve but few of the problems; but groups, by thinking, planning and working together, will eventually be on the winning side . . . especially by using education and research.

We certainly like the idea of naming two farmers and their families as community demonstration, or pilot farms, and the extension folks can then "carry" research to those two farms. In other words, it seems to work better, to have two local experiment farms.

Yes, sir: these pilot farms and organized community clubs started a soil bank program for our county back in the early 1940's. They reduced their corn acreage by half; applied a correct amount of fertilizer and made over twice as many bushels per acre.

The same was true of tobacco. Extra fertilizer made the difference of 900 lb. per acre then and 1,900 lb. per acre now. After we had reduced our corn acreage by 10,000 acres, we then swapped those acres for 6,000 acres of alfalfa and 4,000 acres to real pasture. We then doubled our milk and beef animals and actually doubled our farm income.



What's New...

In Products, Services, Literature

You will find it simple to obtain additional information about the new products, new services and new literature described in this department. Here's all you have to do: (1) Clip out the entire coupon and return address card in the lower outside corner of this page. (2) Circle the number of the item on which you desire more information. Fill in your name, your company's name and your address. (3) Fold the clip-out over double, with the return address portion on the outside. (4) Fasten the two edges together with a staple, cellophane tape or glue, whichever is handiest. (5) Drop in any mail box. That's all you do. We'll pay the postage. You can, of course, use your own envelope or paste the coupon on the back of a government postcard if you prefer.

No. 6491—Pipe Joint

The Smith-Scott Co., Inc., has developed a new type of steel pipe field joint, which is claimed to reduce the cost of laying pipe in the ground. It is called a "ring-seal field joint." The company states that "the joint embodies a self-sealing rubber gasket, which locks securely into place in a special key-way. This results in considerable flexibility, while guaranteeing leak-proof joints. It is said to be simple enough to be installed by unskilled labor." The joint is made by pushing the spigot end of one pipe three or more inches into the belled end of another, thus placing the "ring-seal" gasket under compression. As the water pressure mounts in its initial flow through the pipe, the gasket moves to one side of the groove and "feathers" out. Once in that position, the joint is claimed to be as strong as the pipe itself. The company's pipe equipped with the new joints is sold in diameters of 4-20 in. and in lengths up to 40 ft. The joint also allows from 4-6° deflection. More complete literature on the joint is available. Check No. 6491 on the coupon and mail it to Croplife.

No. 6492—Test Gauge Catalog

A new 8-page catalog just published by United States Gauge, Division of American Machine & Metals, Inc., deals with the selection of test gauges, also cataloging a variety of test gauges for various applications. The publication (No. 400) provides a list of check points for ordering pressure gauges, and is available by checking No. 6492 on the coupon and mailing it to Croplife.

No. 6493—Electrostatic Dusting

Agricola, Ltd., has prepared an 8-page booklet entitled, "Electrostatic Dusting." Electrostatic dusting uses the principle of electrostatics as a method of applying crop protection chemicals. The booklet states that the basic principles underlying electrostatic dusting are contained in the two axioms that "like forces repel, unlike forces attract," and that "an electrical force induces an equal and opposite charge at an equal distance on the other side of a conducting surface." The instrument designed by the company for this type of dusting is called by the trade name, "Agricola Electroduster." The booklet states that the unit greatly increases dust deposits, produces equal deposits on both sides of the leaf, provides complete and even distribution and a 50% savings in outlay in chemicals. Secure more complete information by checking No. 6493 on coupon and mailing it to Croplife.

No. 6494—Soil Conditioner, Nutrient

The Paxton Processing Co., Inc., has announced details of its product, called by the trade name Paxco Topper, a soil conditioner and plant mulch. The product is compounded from dehydrated corn cob meal, treated to kill weed seeds and mold spores and dried for lower shipping expense. Nitrogen is added to balance the nutrient requirements of bacteria which transform the product, on or in the ground, into humus. Advantages claimed for the product are: It will keep down grasses and weeds in shrubs; it is an insulating blanket which holds moisture in the soil; it converts into humus when spaded into the soil; and it conditions the soil. Company spokesmen say the product is priced to compete with mulches and humus. Secure more complete details by checking No. 6494 on the coupon and mailing it to Croplife.

Also Available

The following items have appeared in the What's New section of recent issues of Croplife. They are reprinted to help keep retail dealers on the regional circulation plan informed of new industry products, literature and services.

No. 6486—NH_3 Systems

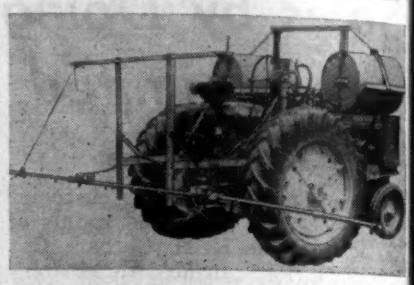
The Dallas Tank Company, Inc., has published a folder and price list for its NH_3 systems, trade named the Economy line. The company makes equipment for various phases of the anhydrous ammonia industry. Applicator tanks in the following gallon sizes are available: 100, 110, 150, 200 and 250; field tanks—500 and 1,000; carts—150, 250, 300 and 500. The folder lists tank specifications and notes that the tanks are guaranteed for one year. For more complete details check No. 6486 on the coupon and drop it in the mail.

No. 6487—Gardening Booklet

"Facts on Hydroponic Growth" is the title of a booklet written by Dr. Paul A. Chatelier, plant nutritionist. Hydroponics, according to Dr. Chatelier, means literally "growing plants without soil." The booklet explains the author's method of growing plants, shrubs, flowers, fruits or vegetables in a supporting medium (gravel, sand, sphagnum moss, wood chips) supplemented by Chatelier plant food. Good results are obtained with the product, according to the booklet. Hydroponic gardening, it is explained, is especially suitable for apartment dwellers, home owners with small yards and even for those who want to make this type of gardening a profession. A copy of the booklet may be secured without charge by checking No. 6487 on the coupon and mailing it to Croplife.

No. 6488—Liquid Applicator

Details of the new "all-purpose" liquid applicator suitable for both insecticide and herbicide applications, as well as for liquid fertilizer, have been announced by the Larson Machine Co. An outstanding feature claimed for the basic applicator unit is that it can be fitted with inexpensive attachments to make diversified applications while plowing, discing, planting or cultivating. It is a new concept for farm operation because of its flexibility, company officials state. Details are available by checking No. 6488 on the coupon and mailing it to Croplife.



No. 6490—Fertilizer Equipment

Edw. Renneburg & Sons Co. has released a new 12-page bulletin describing its continuous granular fertilizer processing equipment. The bulletin covers ammoniators, granulators, continuous combination ammoniator-granulators, dryer furnaces, dryers, coolers, combination dryers and coolers, air handling systems and pilot plant equipment. Included are equipment photographs, plant shots and detailed drawings. There is also a layout of a fertilizer plant using typical Renneburg equipment and a granular fertilizer unit flow sheet. Secure the bulletin by checking No. 6490 on the coupon, clipping and mailing it to Croplife.

No. 6489—Soil Sterilant Brochure

An 8-page, illustrated brochure, which describes how soil fumigation increases yields of many crops has been published by Stauffer Chemical Co. The new publication claims that malnutrition and drouth have often been blamed for crop failures whereas root and seed-attacking fungi and nematodes were the real culprits. The brochure outlines methods of fumigating the soil by applying Stauffer's temporary soil sterilant, Vapam. Various application methods such as a sprinkling can, hose proportioner, sprinkler, deep injection, shallow injection, plow sole application, flood irrigation or sprayer may be used. The fumigant is said to kill all soil pests, including fungi, nematodes, weeds and weed seeds, and then evaporate as a harmless gas. It has been used in treating both seed beds and fields in all U.S. climates. Secure the brochure without charge by checking No. 6489 on the coupon and mailing it to Croplife.

No. 6485—Soil Sterilant

A four-page, well illustrated brochure, which describes a one-application method of ridding soils of weeds, weed seeds, fungi and nematodes, has been published by Stauffer Chemical Co. The publication places main emphasis on the treatment of tobacco plant beds. It states that fall treatment with Vapam, the temporary soil sterilant developed by Stauffer chemists and agronomists, permits spring seeding at the earliest possible date and eliminates the labor expense of weeding. The brochure outlines basic, easy-to-follow procedures to be employed in taking ad-

Send me information on the items marked:

- ☐ No. 5552—Boilers
- ☐ No. 5553—Car loader
- ☐ No. 6482—Garden Chemicals
- ☐ No. 6483—Wood Preservative
- ☐ No. 6484—Tractor Shovel
- ☐ No. 6485—Soil Sterilant
- ☐ No. 6486—Anhydrous Systems
- ☐ No. 6487—Gardening Booklet
- ☐ No. 6488—Applicator
- ☐ No. 6489—Brochure
- ☐ No. 6490—Equipment
- ☐ No. 6491—Pipe Joint
- ☐ No. 6492—Catalog
- ☐ No. 6493—Booklet
- ☐ No. 6494—Soil Conditioner

NAME .....

COMPANY .....

ADDRESS .....

CLIP OUT—FOLD OVER ON THIS LINE—FASTEN (STAPLE, TAPE, GLUE)—MAIL

FIRST CLASS
PERMIT No. 2
(Sec. 34.9, P. L. & R.)
MINNEAPOLIS, MINN.

BUSINESS REPLY ENVELOPE
No postage stamp necessary if mailed in the United States

POSTAGE WILL BE PAID BY—

Croplife

P. O. Box 67

Reader Service Dept. Minneapolis 1, Minn.

vantage of the product to eradicate all types of soil pests. Copies of the brochure are available, without charge, by checking No. 6485 on the coupon and mailing it to this publication.

No. 6484—Tractor-Shovels

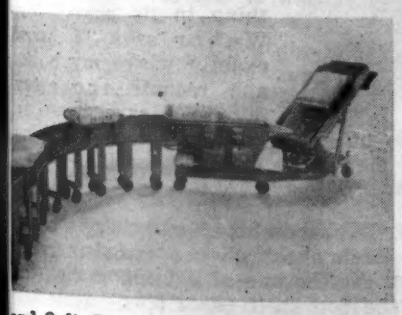
Two new four-wheel drive, pneumatic-tired tractor-shovels have been announced by the Frank G. Hough Co. Part of the "Payloader" line, the model HH has a payload capacity of 1¾ cu. yd. and the model HU a capacity of 1⅛ cu. yd. The necessity of coming to a stop for a range shift is eliminated with a new "no stop" transmission. All shifts in both forward and reverse can be made without slowing down. Power steering and power brakes are provided. Complete specifications and literature on both models are available without charge. Check No. 6484 on the coupon and drop it in the mail.

No. 6483—Wood Preservative

A new folder on the wood preservative called by the trade name Carbolineum, has been prepared by the Carbolineum Wood Preserving Co. The folder claims that the product doubles the life of wood, stops termites easily and surely and stains wood a nut brown color. It adds that one application a year on poultry houses kills and keeps out chicken mites, blue bugs and fowl ticks. The product is recommended for posts, barns, cribs, poultry houses, cabins and cottages. Covering capacities are included in the folder. The folder may be secured without charge by checking No. 6483 on the coupon and mailing it to this publication.

No. 5553—Car Loader

Officials of the R. T. Sheehan Co. have announced new additions to the firm's system of one-man push button loading of boxcars and trucks. The firm's Stacker Car swings manually 180° off from the end of the Flex-Bend (see picture) and raises, lowers, moves forward and reverse with push buttons. The operator guides the Stacker Boom to the spot where he wants to place the bag. The Stacker Boom has an 18 in. wide belt and comes in two lengths, 6 ft.



and 8 ft. It raises to a height of 84 in. and lowers to 18 in. from the floor. The speed of the Flex-Bend and Stacker Boom is set to handle twenty 100-lb. bags per minute with one man operation. The car loader is made up of four component parts, stacker car, belt drive car, power traveler car and center cars. Center cars are added to give the overall length. Secure more complete details by checking No. 5553 on the coupon and mailing it.

No. 6482—Garden Chemicals Folder

A new folder on garden chemicals has been published by E. I. du Pont de Nemours & Co. "Chemicals are garden tools as necessary as hoes and rakes," according to the folder. Such products as fruit tree spray, dormant spray oil, rose spray-duster, rose insecticide and fungicide, garden insect sprayers, floral dust, tomato dust, vegetable garden dust and a variety of chemicals for weed control in lawns and gardens are described in the folder. A number of illustrations of insects and plant and vegetable diseases, as well as of product containers, are shown. Check No. 6482 on the coupon, clip and mail it to Croplife to secure the folder.

No. 5552—Boilers

A new folder describing the Nebraska Water Tube Boilers has been released by the Nebraska Boiler Co., Inc. The folder describes the features of steam generation, heat transfer, combustion, firing equipment and controls, performance and accessibility. A detailed chart showing ratings and data of the various models of N-B boilers also is inplease check No. 5552 on the coupon and mail it to Feedstuffs.
cluded. For a copy of this booklet,

West Virginia Sales Show Dip in First Half of 1956

CHARLESTON, W.VA.—Farmers and other users of commercial fertilizers in West Virginia purchased 65,465 tons during the first six months of 1956, according to J. T. Johnson, commissioner of agriculture. Compared to the first half of 1955 sales in the state were down about 4%.

Most of the decrease occurred in mixed fertilizers, with the total of 58,776 tons down 5%, while 20 percent super phosphate at 3,625 tons was up 7%. The sales of 5-10-10 amounted to about 48% of the mixtures sold, while 3-12-6 the next most important type amounted to 13% of the total mixed fertilizers.

Based on the average retail prices that farmers were paying around April 15 the total cash outlay for fertilizers amounted to around 3.4 million dollars during the first half of 1956, compared to 3.6 million during the first half of 1955. The bulk of this money was spent for mixed fertilizers which amounted to 3.1 million dollars.

This report is based on information supplied by manufacturers and dealers and is published in compliance with Section 13 of the West Virginia Fertilizer Law.

Rutgers Grassland Conference Scheduled

NEW BRUNSWICK, N.J.—Dr. J. K. Loosli, in charge of animal nutrition studies at Cornell University, will be among speakers at the annual Grassland Farming Conference, Oct. 30 at the College of Agriculture, Rutgers University.

Practical aspects of grassland farming will be emphasized, according to Dr. M. A. Sprague, chairman of the state grassland committee and head of the farm crops department at Rutgers.

One of the afternoon speakers will be Curtis Hobson, manager of Marlu Farms, Lincroft, home of one of the world's outstanding herds of Jersey cattle. Others on the program, to begin at 10 a.m., will be Claude Eby, research specialist at the University's Dairy Research Farm, Beemerville; Dr. Richard J. Aldrich, weed control specialist, and Mark E. Singley, farm engineer whose research has included curing and storing of forages.

HEADS CROPS DEPARTMENT

NEW BRUNSWICK, N.J.—Dr. M. A. Sprague has been appointed permanent chairman of the department of farm crops at the College of Agriculture, Rutgers University. The announcement by Dr. William H. Martin, dean of the college and director of the Agricultural Experiment Station, changes Dr. Sprague's status from that of acting chairman, which he had held since July, 1955.

What's Been Happening?

This column, a review of news reported in Croplife in recent weeks, is designed to keep retail dealers on the regional circulation plan up to date on industry happenings.

The meeting of the fertilizer industry round table brought out up-to-date information on modern plant food manufacturing techniques during its three-day convention in Washington, D.C. About 300 persons were in attendance to represent all segments of the manufacturing industry.

A new name, "The National Fertilizer Solutions Assn." was adopted to designate a new group formed by the consolidation of the former National Nitrogen Solutions Assn. and a group of liquid complete fertilizer makers. The convention was held at Sioux City, Iowa, with some 300 persons registered.

Two new antibiotics, Anisomycin and Griseofulvin were successful in controlling powdery mildew of snap beans in greenhouse tests by the USDA, it was announced.

A U.S. Department of Agriculture survey turned up additional areas in New Jersey, Pennsylvania and New York that will need gypsy moth control measures in 1957. Plans call for from two to four times as much insecticidal spraying in 1957 as in 1956. . . Consignment selling and guaranteed merchandising sales were condemned during a session at the annual meeting of the Carolinas-Virginia Pesticide Formulators Assn. in Pinehurst, N.C.

Chemical Lime Co. of Oregon planned to build a $1,250,000 chemical lime plant at Portland, Ore. Available lime is sufficient to supply the needs of the Pacific Northwest for the next 60 years, a company spokesman declared. Production will be 75,000 tons a year.

Grasshoppers posed a serious threat in New Mexico for 1957, on 2½ million acres of rangeland, and 196,000 acres of croplands in the state. A wide area of the state is affected in the insect threat.

The U.S. Tariff Commission reported that production of synthetic organic chemicals in 1955 was up 22% over the output of 1954. Pesticides and other organic chemicals exceeded the production of 1954 by 21%, the report said.

That unusually heavy populations of grasshoppers are present in Colorado, was found in recent surveys in the state. Some 438,000 acres of cropland were said to be infested with the insect, giving rise to predictions that next year will see major infestations. As always in making such predictions, the weather must be taken into consideration, according to Gordon Mickle, A&M College entomologist, but under conditions favorable to the development of grasshoppers, 1957 could see unusually heavy infestations.

The National Association of Commissioners, Secretaries and Directors of Agriculture met in San Francisco. The twin problems of pest eradication and the control of insecticide residues on harvested crops were covered by speakers.

Sugar beet acreages for the 1957 crop have been increased, the USDA announced. The national allotment is set at 885,000 acres as compared to 850,000 acres in 1956.

The Re-Mark Chemical Co. began a $100,000 modernization program to increase its fertilizer output five-fold, the company said. Located at Homestead, Fla., the firm recently purchased the R. W. Brown fertilizer plant at Goulds, Fla. This new subsidiary will be known as Hurricane Fertilizer Co.

A report by the U.S. Bureau of Mines confirmed earlier reports by the American Potash Institute that production of potash was up slightly in 1955. The government report stated that consumption of potassium salts was up 4% in 1955 as compared to the previous calendar year.

The American Chemical Society was told at its 130th national meeting that if farmers would use fertilizers at levels recommended by state experiment stations, the extra income from this means would be more than government supports at 100% of parity. Dr. Russell Coleman, executive vice president, National Plant Food Institute, made the statement. Other speakers reported on tests made on various pesticides and plant foods at the Atlantic City, N.J., meeting.

Tests of aerial fertilization of forests were reported on by Rutgers University, New Brunswick, N.J. Applying a complete fertilizer on an 11-acre stand of red pine, caused the 28-year-old trees to mature more rapidly. Tests were made in cooperation with the Nitrogen Division, Allied Chemical & Dye Corp., New York. Fertilizer used was a 12-12-12 grade.

That a curtailment of shipping through the Suez Canel would not be likely to halt shipments of pyrethrum into the U.S., was the expressed opinion of USDA officials in Washington, when asked about this possibility. It was noted that since the pyrethrum flowers come from the Kenya colony and Belgian Congo areas of South Africa, that by-passing the canal would not add materially to the length of the sea-water route to the U.S.

The New England fertilizer conference held at Melvin Village, New Hampshire, brought out testimony from various speakers that the industry's future in the six New England states is promising. One economist visualized the level of fertilizer consumption reaching a plateau, but said that the ups and downs would be of a gentle type and not drastic in nature.

Massachusetts department of public health bacteriologists were making a thorough study to find possible additional insect vectors of encephalitis, or "Horse Sleeping Sickness," many cases of which have been reported in the area. Suspected mosquitoes are captured, quick frozen, pulverizd, and the material then inspected under electronic microscopes.

New England News Notes

By GUY LIVINGSTON
Croplife Special Correspondent

Farmers in Massachusetts' 15 soil conservation districts last year converted more than 1,000 acres of cropland to grass and trees, according to the state conservationist for Massachusetts, Dr. Arthur B. Beaumont, Soil Conservation Service, Amherst. He said the shift, which has taken place as part of the regular soil and water conservation program, has totaled more than 1,500 acres during 1954 and 1955.

"This is a significant measure of interest that farmers have in shifting their poorer acres to grass and trees —a move that will be given tremendous added stimulus by the conservation reserve of the soil bank," he said.

Flood Control

New England is making good progress in a $130,000,000 program to buttress itself against floods. It was about a year ago when southern New England, still groggy from hurricane-spawned floods, experienced the worst disaster in the region's history. Since then, pace of flood control activity has been furious.

Construction has already begun on a flood control dam at Barre Falls on the Ware River east of Barre that wasn't even contemplated when the 1955 flood struck. Ground breaking ceremonies were held Oct. 5 at Buffumville on the Little River in Charlton for a $1,200,000 dam.

Apple Crop

New England's commercial apple crop has been nearly cut in half by killing frosts. The New England Crop Reporting Service of the U.S. Department of Agriculture estimated the 1956 crop at 4,720,000 bu., 45% less than last year. It is the smallest yield since the near crop failure of 1845. The frosts in May damaged trees in Massachusetts and New Hampshire, and cool weather, at blossom time, also resulted in poor pollination by limiting bee activity in other sections.

In addition, brief, but violent thunderstorms bearing hail and rain on high winds brought thousands of dollars worth of more damage in September.

Western Maine and western Massachusetts suffered big losses. A Hebron, Me. grower, A. B. Sturdevant, estimated the storm of Sept. 14 caused a loss of $40,000 to $50,000 in Hebron alone. Other New England growers said apples were blown down and bruised by hailstones which Mr. Sturdevant said were "as big as acorns."

Japan Visitors

At the invitation of Japanese authorities, three University of Massachusetts educators are visiting Hokkaido University at Sapporo during October to discuss a prospective mutual exchange program of technical advice and assistance in agriculture between the Japanese institution and the state university in Amherst. Similar programs are now being carried on with foreign institutions by many U.S. universities.

Visiting Hokkaido are President J. Paul Mather, Dr. Dale H. Sieling, dean of the college of agriculture and director of the experiment station and Dr. John W. Zahradnik, assistant research professor in agricultural engineering. The group is traveling under the terms of a federal contract in force between the University of Massachusetts and the International Cooperation Administration.

Weeds Cause Loss Of $8.6 Million To Maryland Crops

COLLEGE PARK, MD. — Weeds took an $8.6 million slice of grain and forage crops in Maryland this year, according to a survey conducted by the University of Maryland.

This loss is in quantity of crop only, and does not count the loss of crop quality caused by weeds.

The statewide loss, as itemized in the survey, is as follows:

Corn—7.2% reduction caused by weeds; 3.4 bu. loss per acre; $1.50 estimated unit price; $5.10 loss per acre; total loss $2,381,000.

Wheat—3.6% reduction caused by weeds; .8 bu. loss per acre; $1.80 estimated unit price; $1.44 loss per acre; total loss $258,000.

Barley—3.9% reduction caused by weeds; 1.5 bu. loss per acre; $1 estimated unit price; $1.50 loss per acre; total loss $129,000.

Oats—4.1% reduction caused by weeds; 1.7 bu. loss per acre; 70¢ estimated unit price; $1.19 loss per acre; total loss $87,000.

Soybeans—12.6% reduction caused by weeds; 2.9 bu. loss per acre; $2 estimated unit price; $5.80 loss per acre; total loss $273,000.

Alfalfa—8.2% reduction caused by weeds; .2 ton loss per acre; $40 estimated unit price; $8 loss per acre; total loss $720,000.

Mixed hay—6.2% reduction caused by weeds; .1 ton loss per acre; $30 estimated unit price; $3 loss per acre; total loss $840,000.

Lespedeza—9.1% reduction caused by weeds; .1 ton loss per acre; $30 estimated unit price; $3 loss per acre; total loss $180,000.

Pasture—15.3% reduction caused by weeds; .3 ton loss per acre; $14 estimated unit price; $4.20 loss per acre; total loss $3,410,000.

GERHART CO.

(Continued from page 9)

the most popular but in recent years farmers using 5-10-10 have been finding better results. Mr. Franklin has been promoting this formula to his customers.

"We also sell lime and arrange to have it spread," says Mr. Franklin, "but here to we have no overhead attached to this product. We just take the order and phone a contractor who also does the spreading to deliver it in bags. And if the customer wants it spread, this is handled at the same time. In nine out of 10 cases, all lime is spread by this contractor. The contractor bills us and we bill the customer, just adding our margin of profit. This provides us with a profit without ever seeing or handling the material."

Because of this mill's personal contact with its customers, credit risks are limited, and this firm does a sizeable credit business. Practically all of its fertilizer business is handled on a credit basis because the same customers already have an established credit for their feed and farm supplies. And because they can buy fertilizer on their same credit, it becomes a weighty factor in overcoming competition.

Several weeks before the fertilizer spreading season comes due, all salesmen leave fertilizer literature with their customers. On their next trip around they ask if the farmers have read the material and if they have any questions. This helps to make a closer tie with E. H. Gerhart for the customer's fertilizer needs and a 98% order renewal is enjoyed from its customers year after year.

RINGING THE cash register

Merchandising Hints for The Retailer

More Facts Needed

About half of all retailers lack knowledge about any average expense, markup, operating ratio or sales figures published for their trade. This was found in a survey made by the University of Minnesota's school of business administration. Interviewed in the survey were 87 retailers in Minneapolis, several of its suburbs and two other communities. As noted, only about one-half reported even knowing of any average expense, markup, operating ratio or sales figure published for their trade, whether by their association or any other source. Less than one-fourth indicated receipt of any useful assistance in sales training from their associations. Fewer than one-tenth of the merchants interviewed regarded their associations as the most useful source of supply for accounting systems.

Feed and farm supply stores which lack adequate space for an office present a difficult problem for operators who are desirous of maintaining an orderly bookkeeping system. One operator who has found a satisfactory solution to the restricted space problem is Clarence Weber of Sunnyside Hatcheries, Inc., Watertown, Wis. He maintains a 6 by 8-ft. office at the rear of his store. Plywood is used extensively for shelves for company records.

Neatness and attractiveness distinguish the small office. A built-in wall file holds all invoices, bills and catalogs, with identification on each drawer. There are a number of paneled, latched drawers with ½-in. plywood dividers. One glass shelf above a portable radio holds decorative pieces.

6- by 8-ft. Office

Mr. Weber has two complete bookkeeping sheets which are clamped to a board and stored on an upper shelf until used about one hour before the close of every day. The ledger sheets contain a complete resume of the day's business.

"There is a place for everything and everything in its place," Mr. Weber says. "I know exactly where my books and records are every minute. I save about an hour a day with this office arrangement and everything is put away out of sight. No messy office this—where things are always getting lost."

Records In Place

The picture shows Mr. Weber in his office, holding a board with ledger sheets. Each sheet gives a complete recap of the daily business. At the end of a business day, the board is stored on the top shelf (door open). Note the ½-in. plywood shelf divider. All panel doors can be closed to make the office even more attractive looking. Note also the built-in steel cabinet drawers.

A State Of Mind

Operating a successful farm supply store is partly a matter of attitude, says one dealer. He states that he pays attention to the small things and tries to stay on top of the business instead of walking behind it. He continues: "Perhaps it's a new state of mind you acquire when you become determined to succeed. I'm careful to see that everything is kept clean and orderly, that we are courteous and businesslike to every customer, that we act with dignity and integrity. We try to create an air of prosperity about the store, because no one wants to do business with a failure."

Limit to 6 Months

"Generally speaking, we recommend that collections (of overdue accounts) be followed consistently but courteously until the point is reached when there are diminishing returns on the effort expended," according to the National Retail Credit Assn. "We would say that when an account reaches six months in arrears and the customary collection efforts have been tried and failed to bring results, then is the time to turn the account over to the collection department of the credit bureau or other recognized professional collection agency," the association states.

Farm Store Appearance Score Card Keeps Sales Staff Alert

By WILL CHRISTOPH

There is a large sign near the center area wrap counter at the Sunshine Feed Stores, Inc., Ayer, Mass., and the copy says, "Ring This Bell For Fast Service." At this spot there is a large button, and when the customer presses it, a bell rings and makes quite a noise.

George E. Bixby, manager of the store, and his staff thought up this idea, and it is typical of Mr. Bixby's willingness to see that any customer whose time is limited can get special attention, even if the bookkeeper has to come out and wait on him.

In this modern age of speed, when even the farmer seems to be crowded for time, this offer of fast service is deeply appreciated by numerous customers. It shows customers that the manager and his employees are ready to cooperate with them to give them the type of service they want.

Mr. Bixby, a kindly, genial and keen-eyed man who has been manager here for 17 years, is always alert to the possibility of making more sales through excellent display, salesmanship and friendliness to customers. Farmers like to come here to visit as well as buy, for they "feel" they are welcome.

Mr. Bixby and his five employees really offer the farmer a lot of display merchandise to look at. The merchandise is departmentalized in a display pattern, it is kept orderly, and this policy helps sell more goods because it catches the attention of many prospects.

The store is approximately 50 ft. by 80 ft., plus warehouse space. Mr. Bixby and staff have built displays around the pillars so that they support and enhance the general display appeal, rather than hinder it. Down the center of the store is a wide aisle along which farmers can walk and see merchandise attractively displayed on both sides.

In this center aisle, too, here and there, are occasional, narrow width, spot displays of special merchandise, but no long, unbroken display line. Thus crossover traffic is easily accommodated even on rush days.

An outstanding feature about this store, as well as others in the organization is the "score card for store appearance" which helps to keep the manager and employees on their merchandising toes. Regular study of this chart and the scoring feature focus attention on specific store management details which keep them from being overlooked. Adherence to this chart and practice of the points in it can't help but improve the appearance of any feed store.

SCORE CARD FOR STORE APPEARANCE

1. General appearance:

Premises: Free from rubbish, weeds, grass, papers, etc. 10 points.

Buildings: Signs and posters prominent and up to date. Only approved advertising displayed. Approved paint and in good condition. Outside lighting satisfactory. Free of accident and fire hazards. 10 points.

2. Office and Display Room:

Floors, desks, tables and cabinets: Neat. Only essentials in and on same. Desks not littered with undone work. Files up to date and regularly cleaned out. Office machines covered and free of dust. Absence of junk. Floor clean. Furniture, desk, etc. free of dust. Windows clean. 10 points.

Display room: Displays neat, free of dust and showing evidence of frequent change. Merchandise properly marked as to selling price, code, etc. Closets, cabinets, etc. orderly and free of junk. Absence of merchandise piled or placed on floor unless special display. Live displays neat, if any. Windows clean. 10 points.

Lavatories: Bowls and other equipment clean throughout, Towels, paper cups, etc. in suitable containers and in generous supply. 5 points.

Walls: Cream trimmed with orange—clean—only approved advertising and calendars. No papers or memos stuck on walls except on bulletin board—only retail lists posted in appropriate places. Literature racks or hooks convenient and up to date. 10 points.

3. Warehouse:

Floor: Free of dirt including bags next to floor. Broken package department, neat. Absence of accident hazards. Farm and home items neatly stored and cartons appropriately coded. Empty bag department orderly. 10 points.

Piling of merchandise: Bags piled same number high and marked for inventory taking with chalk. Absence of torn bags. Freedom of rat and mouse damage. Platform displays made daily. 10 points.

Walls: Approved advertising only and that neat and timely. Orderly arrangement of equipment and inventory. Freedom of accident hazards such as nails face high, broken floor, steps, etc. Free of fire hazard. Fire extinguishers in proper place and working order, with dates of last inspection thereon. 5 points.

4. Employees:

Uniforms neat and complete. Neckties, even small black is recommended unless heat is extreme. Employees neatly shaven. 10 points.

5. Trucks and Equipment:

Truck cabs and hoods clean and waxed. Body, wheels and running gear properly painted. Evidence of careful attention shown throughout. Motors, grinders, mixers kept clean. Service equipment in designated spot. 10 points.

Total points, 100.

"By going over this score sheet regularly," says Mr. Bixby, "I am able to focus attention consistently on store appearance and keep it up to par."

Another score card which Mr. Bixby uses deals with judging merchandising ideas. Many times a sales promotion idea will look and sound excellent, but, like all other business measures, needs to be closely analyzed, states Mr. Bixby. Here is the score sheet:

MERCHANDISING IDEA SCORE CARD

1. Completeness of plan ..20 pt. ——
2. Extent to which it could interest customers and prospects .....20 pt. ——
3. Possibilities of cash return .....20 pt. ——
4. Probabilities of bringing new people to store ...20 pt. ——
5. Completeness and probable effectiveness of advertising .....20 pt. ——

Total score ——

Through these charts, plus newspaper, radio and direct mail advertising, as well as some radio copy, and also effective store and live display and route selling, this feed store is able to take advantage of many merchandising opportunities in its area.

Program Announced For Minnesota Soils, Fertilizer Short Course

ST. PAUL—The sixth annual Minnesota Soils and Fertilizer Short Course will be held Dec. 3 at Coffey Hall Auditorium, St. Paul Campus, University of Minnesota, according to an announcement by Dr. William P. Martin, head of the university's department of soils.

The morning program will include: Welcome by T. H. Fenske, associate dean, Institute of Agriculture, University of Minnesota; "Minor Element Chelates Help 'High Lime' Soils," J. H. MacGregor, department of soils; "Let's Face the Facts," Z. N. Beers, executive secretary, Middle West Soil Improvement Committee; "Are Fertilizer Solubilities Important?" A. C. Caldwell, department of soils; "Water Use and Crop Fertilization," E. B. Norum, North Dakota Agricultural College; remarks by Dr. Martin.

The afternoon program will include three talks, a panel discussion and a question and answer session.

Speakers and their topics are "Start with Lime," John Grava, department of soils; "The Soil Bank and Fertilizer Use," Raoul Allstetter, National Plant Food Institute, and "Effect of Fertilizer use on the Farm Business," Ermond Hartmans, agricultural economics extension specialist.

C. J. Overdahl, soils extension specialist, will be moderator for a panel on the topic of "Soil Management for Crop Production." Panel members will be Richard H. Rust, department of soils; Ray Lukken, Waseca County cash grain farmer; Clarence W. Meyers, Faribault County livestock enterprise farmer, and Roy Bennett, Minnesota Soil Conservation Service.

Hercules Powder Net Income Shows Gain

WILMINGTON—Hercules Powder Co. reported for the nine months ended Sept. 30, 1956, net income equal after payment of preferred dividends to $1.66 a share of common stock. Net income for the first nine months of 1955 was equal to $1.73 a share of common stock.

For the third quarter of 1956, net income was equal after payment of preferred dividends to 48¢ a share of common stock. This compares with net income in the third quarter of 1955 equal to 60¢ a share.

Net sales and operating revenues for the nine months' period were $177,544,464 compared with $169,791,798 for the corresponding 1955 period.

SHIFT TO GRASS, TREES

NEW BRUNSWICK, N.J.—Farmers in New Jersey's 12 soil conservation districts last year converted more than 1,100 acres of cropland to grass and trees, according to a summary of conservation accomplishments by Frank C. Edminster, state conservationist for the U.S. Soil Conservation Service here. Mr. Edminster stated that this shift, which has taken place as part of the regular soil and water conservation program, totaled more than 3,375 acres in 1954 and 1955 combined.

Be the SMART ONE in YOUR MARKET!

through PRIVATE LABELS!

Only through private labeling can you "out fox" local competition from the national brands.

With private labels *you* become the "smart one" . . . *you* become the pacesetter in *your* market.

It's time you investigated the sales potential of your products under your name in your local market. Other "smart" operators have discovered that thru private labeling they can assure *repeat orders* on their products because they have an exclusive on their high quality line in their market.

Through private labeling *you* are assured an *exclusive* on *your* high quality line in *your* market . . . *Your customers can't reorder from anyone but YOU!*

PRIVATE BRANDS, INC., *is ready with a complete service to help you become the smart one in your market. It will pay you to investigate today!*

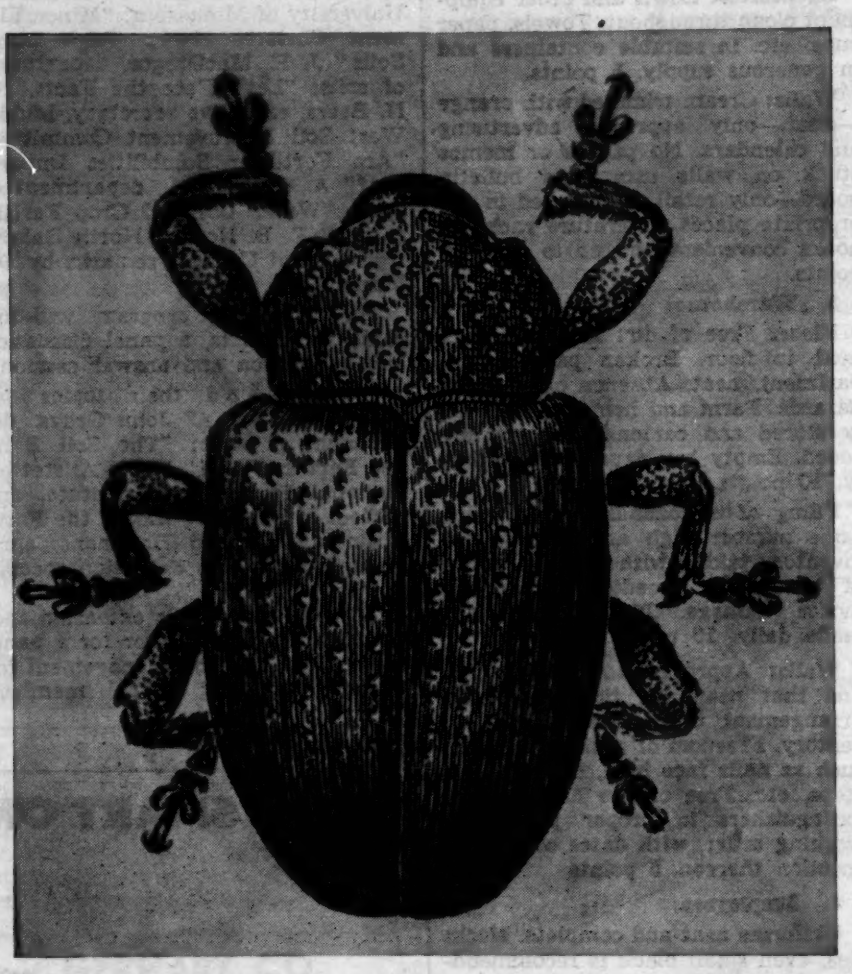
Write, Wire, Phone for Particulars.

PRIVATE BRANDS, INC.

300 S. THIRD—DEPT. CL-5—KANSAS CITY, KANSAS

BUG OF THE WEEK

Mr. Dealer--Cut out this page for your bulletin board



Cowpea Curculio

How to Identify

In the adult stage, cowpea curculio is a black, humpbacked, snout beetle usually about a quarter-inch in length. The larvae are whitish and legless, with yellowish-colored heads. They measure up to a third of an inch in length.

Damage Done by Curculio

The adults eat small holes in pods and peas, while the larvae feed within the green seed of the plant. In addition to the damage done by punctures made by adults, eggs are laid in the holes eaten through the pods. This insect seldom flies and has the characteristic of remaining motionless, "possum-like" when disturbed even slightly.

Control of Cowpea Curculio

Since this pest is found on the edible portion of plants, particular care must be taken in the timing and quantity of any insecticide recommended and used for control of the curculio. State and local recommendations should be ascertained and manufacturers' instructions on the package should be followed precisely to avoid the presence of toxic residues on the fruit at harvest time.

Illustration of Cowpea Curculio furnished Croplife through courtesy of U.S. Department of Agriculture.

Previous "Bug of the Week" features are being reprinted in attractive 24-page booklet, priced at 25¢ single copies; reduced rates in quantities. Write Croplife Reprint Dept., Box 67, Minneapolis 1, Minn.

FARM SERVICE DATA
Extension Station Reports

Late fall is a good time to treat lawns and turf areas for grubs of European chafer, according to Foster L. Campbell, Cornell and New York University entomologist, at the New York State Experiment Station at Geneva.

Long-lasting insecticides are now available which afford good protection against this pest for three to five years when mixed with the top three inches of soil, says the station scientist. He also points out that any material that is effective against chafer grubs will control grubs of Japanese beetle.

Severe damage to grasses, grains, strawberries and other plants by European chafer was first noted about 1940 in Wayne County. The pest is now established in many areas in western New York.

★

Spraying California privet in late June or early July with DDT or malathion gave good control of thrips in experiments conducted by John C. Schread of the Connecticut Agricultural Experiment Station.

Mr. Schread also found that scales on magnolia and tuliptree were controlled with one treatment of malathion applied in April. Thimet was effective when used on the magnolia scale.

Malathion applied in July gave good control of the boxwood leaf miner. Malathion also proved effective in control of the boxwood psyllid, and gave complete control of whitefly on mountain-laurel.

★

Measures to control Dutch elm disease which last year cost Massachusetts property owners an estimated $2 million, should be continued right through the fall and winter. Dr. Francis W. Holmes, shade tree specialist at the University of Massachusetts said the institution's laboratories last year confirmed 10,000 cases of the disease. Although this year's cold spring delayed the Dutch elm season, a large number of cases was discovered this summer.

"If those communities now conscientiously and successfully practicing control methods were to abandon their good work, the annual loss from Dutch elm disease would rise sharply," he said.

★

Corn stalk rot makes mechanical picking difficult and reduces corn yields. Corn stalk rot also causes stalks to rot and break-over, causes premature ripening and rotting of the ears. These three symptoms of stalk rot may cut corn yields considerably, says Dr. L. O. Weaver, University of Maryland plant pathologist.

Control of this disease, which also attacks crops such as wheat, barley and rye, includes crop rotation and plowing under crop residues. Spores that cause the disease, develop in crop residues left on top of the ground. Root and stalk rots become evident soon after pollination and increase until the crop matures. The disease is spread to the ears by spore laden winds.

"Plow under stalks and straw to bury these spores and reduce the chances of having an infected crop next year," says the pathologist. Reports also indicate that insufficient potash in the soil favors rot. High nitrate levels may increase stalk rot. These soil conditions indicate a need for balanced plant food supplies as well as adequate fertility, says Dr. Weaver.

★

The Northeastern part of the U.S. can economically use more grassland than is now produced, declared a Pennsylvania State University agronomist recently at the West Virginia meeting of the Soil Conservation Society of America.

John B. Washko, professor of agronomy at Penn State, said about 4 acres of pastureland and 2 acres of hayland are now used to carry each of the 5 million animal units on Northeast farms. He pointed out that with good management, farmers can support one animal on one acre of pastureland and one-half acre of hayland—except in periods of severe drouth.

"Our grasslands will have to carry more livestock than they do now if the Northeast is to carry its share of the burden in feeding the 200 million people anticipated in the U.S. by 1975," Dr. Washko stated.

"By 1975 the Northeast will have to carry about 8 million animals if we are to properly feed the increased population," he added. "This means that each animal unit will have to be supported on 2½ acres of pasture and 1.2 acres of hayland instead of on 4 and 2 as done now."

Grasslands in the Northeast will have to be upgraded if the potential feed producing power of the area is to be realized, he noted. The goal should not only be high production but increased efficiency in using the forage produced. Upgrading of grasslands will require liming and fertilization, renovation, extension of the grazing season with small grain, providing supplementary pastures for mid-summer grazing, and improved grazing practices, he said.

OVER THE COUNTER
(Continued from page 9)

personal visit as most important. But he said that only a small portion of prospects can be reached regularly in this way.

He mentioned the telephone as the next best means, followed by the personal letter.

"Letters, however, give the reader a chance to be selective," Mr. Waugh said.

Other media mentioned included radio and television, newspapers and magazines, shows and fairs, remembrance advertising, point of sale and publicity.

Dealers were encouraged to work with FFA and other youth groups to gain local recognition and publicity.

VERMONT FARM RECEIPTS

BURLINGTON, VT. — Vermont's total receipts from agricultural marketing in 1955 totalled $109.9 million —an increase of $5 million over 1954, reports Dr. Thurston Adams, Vermont extension agricultural economist. From January to June this year the gross from farm marketing increased $400,000 from the level of 1955.

Books on Fertilizers And Their Use

APPROVED PRACTICES IN PASTURE MANAGEMENT (1956)
M. H. McVickar, Ph.D.
Outlines clearly and concisely how to have productive pastures to furnish high-quality forage for livestock, economically and efficiently. Written for grassland farmers. Covers the important activities associated with establishment, management and efficient use of pastures as grazing lands or as a source of fine winter feed for livestock. It is as specific as possible for all U. S. pasture areas. Twenty chapters, 256 pages, illustrated $2.40

MANUAL ON FERTILIZER MANUFACTURE—Second Edition
Vincent Sauchelli
A complete up-to-date revision of this well known book, that reviews in simple, everyday language the processes of manufacture of superphosphates, of ammoniation, and the formulation and preparation of mixed fertilizers. Indispensable to fertilizer plant supervisors and operators, and a valuable aid to research men and teachers. New chapters added: on plant nutrition, mixed fertilizers, ammoniation, granulation, revised and brought up-to-date. 80 tables of practical information..... $4.50

HUNGER SIGNS IN CROPS—Second Edition
A symposium — published jointly by the American Society of Agronomy and the National Fertilizer Association.
A comprehensive study of nutrient-deficiency symptoms in crops compiled by 19 of the leading authorities in the field. It is being widely used by college professors, research and extension specialists, industrial chemists and agronomists, county agents, and teachers of vocational agriculture. Many farmers have found it of particular value in planning their fertilizer programs. Cloth bound, 390 pages, 242 illustrations, including 124 in full color.... $4.50

USING COMMERCIAL FERTILIZER (1952)
Malcolm H. McVickar
Dr. McVickar is chief agronomist of the National Fertilizer Assn. The book deals specifically with commercial fertilizer, how it is produced and how to use it. It is non-technical. It includes chapters on how to measure fertility of soils, secondary and trade-element plant foods. 208 pages, 106 illustrations, cloth bound $3.00

THE CARE AND FEEDING OF GARDEN PLANTS
Published jointly by the American Society for Horticultural Science and the National Fertilizer Association.
An entirely new, one-of-a-kind book. It is designed to acquaint readers with nutritional deficiency symptoms or "hunger signs" of common yard and garden plants including lawn grasses, shrubs, flowers, garden vegetables, and cane and tree fruits. It stresses plant "feeding," or "what makes plants grow." Sixteen of the nation's leading horticultural authorities collaborated in its preparation. Cloth bound, 300 pages of text and illustrations including 37 pages in full color $3.00

MANURES AND FERTILIZERS
A survey by the Ministry of Agriculture and Fisheries, dealing with soil analysis, inorganic fertilizers, waste organic substances and principles of manuring. In language to give the farmer basic principles of increasing soil fertility by the application of natural organic manures and synthetic inorganic fertilizers. Many important tables on quantitative data $2.50

COMMERCIAL FERTILIZERS, Their Sources and Use—Fifth Edition (1955)
Gilbeart H. Collings
Based upon the author's practical experience as an experiment station agronomist and teacher, and incorporating information on recent developments by agronomists, chemists, engineers and fertilizer manufacturers. Authoritative on problems concerning commercial fertilizers and their use in gaining larger yields. 160 illustrations, 522 pages.. $8.00

PLANT REGULATORS IN AGRICULTURE
Dr. Harold B. Tukey
Published September, 1954. A textbook giving background material for county agents, farmers, citrus growers, nurserymen, gardeners; providing fundamentals and general principles; covers encouragement of roots by plant regulators, control of flowering and fruit setting, parthenocarpy, abscission, prevention of preharvest fruit drop, delaying foliation and blossoming, maturing and ripening, inhibition of sprouting and weed control. Brings together specialized knowledge of 17 authorities in the field, with two chapters written by Dr. Tukey, head of department of horticulture at Michigan State College. 269 pages $5.50

PHOSPHATES IN AGRICULTURE
Dr. Vincent Sauchelli
A valuable book for the fertilizer salesman, agricultural teacher, farmer, fertilizer agent and county agent. Deals with rock phosphate versus superphosphate and colloidal phosphate, with the origin of phosphorus, the mining and processing of the phosphate rock, granulation of superphosphates, fixation of phosphates in the soil, losses of phosphorus and replenishments, phosphorus in nutrition, radioactive phosphorus, basic slag, fused and sintered phosphates and TVA research data on phosphates from field tests in 13 states. 176 pages and well illustrated $2.75

Order From Croplife

Reader Service Department
P.O. Box 67
Minneapolis 1, Minnesota

(enclose remittance)

if your product is marketed through distributors and dealers...

Croplife is for YOU!

AN IMPORTANT EXCLUSIVE is available to advertisers whose agricultural chemical products are marketed through distributors and dealers. It is Croplife's unique *regional crop-area circulation plan*, carefully developed to fill an urgent need in the industry's marketing and advertising facilities—the need of advertisers to reach the dealers and distributors and farm advisers with an up-to-date story of their products and their consumer promotion plans.

THIS IS THE PLAN: In addition to the weekly circulation to manufacturers and formulators, Croplife is distributed on a regional crop-area basis to the dealer-distributor-farm adviser segment of the industry. The merchandising section in each issue of Croplife is specifically edited for dealers in one specific region. This carefully planned editorial formula insures intense reader interest.

More than 15,000 DEALERS, 1,700 custom operators and 1,000 farm advisers receive the issue of Croplife specifically edited for their regional crop-area once each four weeks. The mailing schedule for this group covers consecutively four geographic regions of the United States (see map) with one of four regional dealer issues: The Northeast Dealer Issue, the South Dealer Issue, the Midwest Dealer Issue or the West Dealer Issue. Each week Croplife goes to more than 4,500 dealers, distributors and farm advisers in one of these four regional crop-areas.

THIS CIRCULATION EXCLUSIVE is available only through Croplife. The regional crop-area circulation to dealers has been carefully developed to fit the particular needs of the agricultural chemical industry. Many individual products have been developed and approved and are being sold for use on a specific crop; therefore, marketing and promotion plans must be directed specifically to the appropriate crop-area. Croplife's dealer circulation developed along crop-area lines offers advertisers the *most flexible medium possible*, designed to give "direct-hit" coverage for specific messages without the higher cost of a larger-than-necessary circulation on an inflexible nationwide basis. Advertisers interested in reaching dealers in more than one region can do so easily and economically with a selective advertising schedule.

In addition to its national coverage, Croplife offers a selective regional circulation plan in these crop-areas

HOW TO USE THE PLAN: Select the regional crop-areas—Northeast, South, Midwest or West—in which you need to reach dealers, distributors and farm advisers with the up-to-date story of your products and your consumer promotion plans. Plan your message to inform and to educate this group. Then, select the appropriate issues of Croplife to carry your advertisements. Croplife's printed circulation statement outlines the four regional crop-areas in detail and gives the issue-by-issue mailing schedule. Ask us for a copy.

AND NOW—4000 more selected dealers have been added!

BEGINNING IN 1956 this important circulation exclusive became even more valuable to advertisers who are reaching dealers through the pages of Croplife. An additional 4,000 selected dealers handling agricultural chemicals are now receiving the issues of Croplife edited specifically for their crop-areas. One thousand dealers in each regional area were screened and verified and have been added to Croplife's controlled circulation plan, bringing the total number of dealers, distributors and farm advisers receiving Croplife to more than 18,000. Each week Croplife goes to more than 4,500 of these interested readers in one of the four regional crop-areas.

MAKE YOUR PLANS NOW to capitalize on this unique advertising opportunity, exclusively through the pages of Croplife.

WRITE-WIRE-PHONE for the full story of your advertising opportunity in

BPA *Member of Business Publications Audit*

Croplife

...for richer sales fields

published by The Miller Publishing Co.

NBP *Member of National Business Publications*

NEW YORK
551 Fifth Ave.
MUrray Hill 2-2185

CHICAGO
2272 Board of Trade Bldg.
HArrison 7-6782

KANSAS CITY
612 Board of Trade Bldg.
Victor 2-1350

MINNEAPOLIS
2501 Wayzata Blvd.
FEderal 2-0575

PESTICIDE CONTROL OFFICIALS

(Continued from page 1)

our inspectors in attempting to reach the answer when something goes wrong," he declared. "We definitely believe our laws are of benefit both to the manufacturer and grower."

Viewing the safety record Mr. Bower saw it as good. He said the hue and cry about "mass poisoning by pesticides was usually the result of a 'headline-hunter'" and time has proven the charges false.

Touching on the problem of "getting the user" to read the label Mr. Bower stated that "as a regulatory official I strive at all times to enforce the law and protect the public, but sometimes I want to throw up my hands in disgust and stop trying to protect that individual who will not make the slighest effort to protect himself as dictated by the most elementary of common sense practices."

"Our record has been good concerning insect outbreaks," he noted, pointing out that registration procedure and labeling requirements had not prevented chemicals from being available for the control of greenbugs, spotted alfalfa aphids, grasshoppers, khapra beetle and the Mediterranean fruit fly. He viewed this as a "noteworthy achievement."

Mr. Bower also reported as good the development of the check samples program. "Samples were sent out for the first time this year and we dare say this practice will continue after we are gone," he predicted.

A field where the officials cannot claim an unblemished record is that of the sales of unlabeled pesticides, Mr. Bower noted. In this connection he pointed to the practice of pouring small quantities from a drum or container or a pound or two of dust where wanted.

In these cases "the tragedy is that the purchaser has no label of any kind attached to the smaller container," he said. "After a portion is used and a day or so elapses the purchaser has no idea of what is in which sack or jug." Mr. Bower said this practice should be obsolete in a day of small packages and "read the label."

The speaker viewed with alarm the trend in pesticide advertising with copy writers making claims which are actually misrepresentations. He said that a product will be registered in good faith by federal and state authorities and the next time you hear it in some advertising media it is not to be recognized. These products have now become non-poisonous, kill any insect that flies or crawls, rid your premises once and for all time or is the only pesticide approved by state and federal authorities for that particular purpose, he stated.

"The problem is how best to correct this situation and keep it from getting worse instead of better," Mr. Bower said.

Touching on nematocides he noted they are covered by law in 33 states but not the federal law.

"The role of nematodes in American agriculture grows in importance each year and we view with alarm the situation we might find ourselves in during the next few years unless nematocides are placed under federal registration," he said.

"The great variety of new insecticides and their widespread use have brought problems currently influencing trends in research on chemical control of insects," E. F. Knipling, entomology research branch of the Agricultural Research Service, U.S. Department of Agriculture, said leading off an address dealing with trends in research on chemicals for insect control.

Mr. Knipling added that although these insecticides have provided satisfactory control of most destructive insects, more effective and more economical materials are needed for many species. Also, several problems have stimulated a search for materials having special insecticidal properties, he noted.

Indicating safety as the major consideration, he stressed the search for insecticides with a maximum degree of safety for those handling them, and of even greater importance, insecticides of low chronic toxicity to man and animals, which disappear rapidly from raw agricultural commodities or permit the establishment of reasonable tolerances.

The necessity of avoiding residues in meat and milk was stressed and the speaker pointed to use of insecticides where the residues disappear in a short time. "One of the most encouraging features of the phosphorus insecticides is their low storage in animal tissue and rapid disappearance. These properties are creating greater interest in these compounds for use on animal feeds and for application to livestock," he stated.

Considering the problem of hazards, he stated that the use of chemicals that are specific in action against the pest being controlled with a minimum of adverse effects on parasites, predators, and pollinators is becoming more urgent.

Mr. Knipling noted three approaches to this problem now under investigation as development and selection of specific insecticides which destroy pests but have little effect on beneficial species, timing of applications and use of systemics.

Se saw the use of insecticides with systemic action as possibly the best way to solve this problem with systemics having the added advantage of lower application costs and greater assurance that treatment will not be nullified by rain or weathering.

The USDA representative saw the trend in chemical control of livestock pests as "definitely in the field of systemics," noting the progress made in development of a safe and effective systemic for controlling the cattle grub and other livestock pests.

Touching on resistance, he noted the concern of manufacturers over the possibility of abandonment of an insecticide in the course of time because of developed resistance. "This problem is naturally causing changes in research trends," he stated.

Although admitting that "we are groping more or less in the dark in our efforts to overcome the resistance problem, it is stimulating more basic research on insect physiology and the mode of action of insecticides. It has stimulated more research on organic phosphorus insecticides, because there is some evidence, although limited, that pests are less likely to develop resistance to them than to chlorinated hydrocarbons," he stated.

Reviewing stimulated research on attractants, Mr. Knipling noted the success of bait sprays to control fruit flies and poison baits for control of resistant house flies as examples of the potential value of attractants in combination with insecticides.

"This approach to chemical control may well lead to increased effectiveness, greater economy, and less hazard to man, animals, wildlife and beneficial insects," he said.

Reviewing research work on other methods of insect control, this speaker noted particular interest in insect pathogens, more effective use of parasites and predators, the sterile-male technique and the use of plant varieties that are resistant to attack.

In conclusion he stated that "new approaches to insect control will be given more and more consideration unless we resolve some of the complex problems associated with the use of chemicals. However, for years to come insecticides and other chemicals will no doubt continue to provide the most generally practical approach to insect control and we cannot afford to relax research to develop new and better ways to employ chemicals for insect control."

"There is a real opportunity to reduce production costs with better weed control products, and the present trend indicates that goal will definitely be reached," W. B. Ennis, Jr., head of the weed investigations section, ARS, USDA, said in a review of developments in the weed control field.

In this connection Mr. Ennis pointed out that 15 years ago no herbicides as known today were on the market, and in 1954 weeds cost $3.7 billion not including non-agricultural losses of another $1.2 billion, representing 25% of production cost. He noted the weed control cost range as $1 to $2 per acre for hay to $170 per acre for strawberries.

The USDA official stressed the need for more research on weed control and indicated that the USDA is placing more and more emphasis on it with a separate section in existence since 1950.

Mr. Ennis noted the work of state experiment stations and industrial firms producing agricultural chemicals working on the problem, and also the four regional weed control conferences and the newly formed Weed Society of America. He predicted that the latter group will "gain much stature as an agricultural society in these United States."

He pointed to the trend to herbicides in specific weed control with stress on a material for a definite crop which might have an entirely different effect on other crops. He also touched on newer compounds and herbicides in granular form and pointed to the need for more work on rangeland and cultivated crops. He placed particular stress on the granular herbicides with their ability to spread around the area and get into the soil.

In the address Mr. Ennis noted that in the past research men and industry had worked "across-the-board" on weed control materials whereas now there would be "specific stress on single problems."

"Modern weed control is a new science and a good framework is being developed for this new science," he stated. He indicates that regional and national problems are now getting attention, but called for more qualified weed control extension men to work in the field.

"The future is bright for methods to eliminate all weed problems with a reduced cost of control," he concluded.

Dr. E. G. Klarmann, president of the Chemical Specialties Manufacturers Assn., Inc., New York, presented an address, illustrated by projected slides, dealing with research and testing procedures and stressing infection, antibiotic usage and problems in surgery and hospital sanitation methods. The address dealt principally with infection problems in the "hospital area."

Control Officials Get Gavel Made From Ship Patch

WASHINGTON—There is an interesting story behind the gavel turned by John E. Schueler, state inspection chemist connected with the University of Maryland, and presented to the Association of American Pesticide Control Officials, Inc., at its tenth annual convention held here recently.

The yarn starts sometime back in 1944 when the British freighter "Zeal," plying the waters of the South Atlantic, was torpedoed by a German submarine. Badly damaged, the ship struggled to a port on the African west coast where the gaping hold in her side, more than 15 feet across, was covered with planks of African mahogany 10 ft. long and nearly 3 in. thick.

Thus, temporarily repaired, the vessel crossed the Atlantic to a Baltimore shipyard where new plates were installed and the "Zeal" returned to active duty.

John E. Schueler, a man of many talents, including chemist, timer for stock car racing, photoengraver, organist, navigator and wood worker, turned the association gavel in October, 1956, from a section of one of these timbers.

★ ★ ★

PESTICIDE OFFICIALS ELECT H. J. FISHER

WASHINGTON—Harry J. Fisher, New Haven, Conn., was elected president of the Association of American Pesticide Control Officials, Inc., at the tenth annual convention of the group held at the Shoreham Hotel here Oct. 19-20. He replaces Clyde A. Bower, Oklahoma City, who received a plaque from the association in recognition of his work. F. H. Gates, Denver, Colo., was named vice president and A. B. Heagy, College Park, Md., was reelected secretary-treasurer. Elected to the executive committee were J. T. Coyne, Washington, D.C.; E. R. Winterle, Tallahassee, Fla.; W. C. Geagley, Lansing, Mich., and C. H. Jefferson, Canada. The president, vice president, secretary-treasurer and retiring president are ex-officio members of the committee.

Proper DDT Dusting Controls Budworm In USDA Tests

WASHINGTON — Dusting tobacco with DDT is still effective for control of the tobacco budworm—if growers apply the dust properly—reports the U.S. Department of Agriculture.

A 10% DDT dust, applied directly to tobacco buds with small plunger dusters as soon as the young budworms appeared, gave excellent protection in tests at Florence, S.C.

The dust checked depredations by the budworm even when plants were treated during a heavy wind and despite a 0.3-inch rainfall soon after the DDT was applied.

These tests were made cooperatively by the Department's Agricultural Research Service and the South Carolina Agricultural Experiment Station.

Some large-scale tobacco growers have recently been using tractor and rotary-hand dusters to speed up the dusting operation to control tobacco budworms in South Carolina and other tobacco-producing states of the Southeast and Mid-Atlantic. But extensive research at the Florence, S.C., station this year showed that dusts applied to the tops of the plants by this equipment did not give satisfactory budworm control.

Poor control of the pest with tractor and rotary-hand dusters has led some growers to believe that the tobacco budworm has developed resistance to DDT. The Florence experiments disprove this theory, USDA says. They show that proper application of DDT will not only control the budworms present at the time of treatment, but will also protect plants from budworm damage for several days after treatment.

Insect Life and Controls Covered In USDA Research Programs

By DR. E. F. KNIPLING*
Entomology Research Branch, ARS
U.S. Department of Agriculture

The total research budget for the entomology research branch of USDA in the current fiscal year is slightly under $5 million. The program can be divided into a number of broad but rather distinct areas of research. It might be of interest to list our major areas of research with an estimate of the total effort devoted to each, with a brief discussion of the nature of the current activities with some indication of trends that the research might take in the future.

Research Area	Per cent of total effort
Chemical control	69
Biological control	8
Biology, ecology, etc.	7
Insect classification and identification	6
Insect resistance in plants	4
Insect pollination and bee management	4
Cultural and other control methods...	2

First, let us consider chemical control. Over two-thirds of our total research effort is devoted directly or indirectly to chemical control of insects. Much of this research is conducted in cooperation with state experiment stations, industry, and other research agencies.

Chemicals generally provide the most successful means of insect control. Hundreds of destructive pests are readily controlled with chemicals. Some of our leading crops, such as cotton, most vegetables, many fruits, and certain forage crops, could not be produced profitably without the various insect control chemicals that are now available to the grower.

Other important crops and livestock would suffer severe damage, particularly in insect outbreak years, if it were not for the use of insecticides. Therefore, the total research investment of the Federal and State agencies and industry all of which have cooperated has yielded high returns to the grower and to the nation's economy which fully justify the effort.

Research on chemical control conducted in the entomology research branch may be classified into several rather well-defined areas. Laboratory evaluation of promising chemicals and subsequent field testing of those that appear practical require most of our efforts. The screening of insecticides represents a relatively small part of this program. Industry has assumed leadership for the synthesis and screening of candidate chemicals, and we feel that they should continue to do so. However, in order to be able to explore the possibilities of certain kinds of chemicals, we find it necessary to do some synthesis work and to do some screening.

For example, in our endeavor to find more effective repellents to protect military personnel from vectors of arthropod-borne diseases, our pesticide chemicals research section has synthesized a large number of repellents which have been screened at the insects affecting man and animals laboratory at Orlando, Fla. This screening program, based on chemical relationships to known promising compounds that were obtained from industry and other sources during World War II, has led to the development of a highly effective repellent, diethyltoluamide, which is of considerable interest to the military agencies.

Another example of the urgency of basic chemical work and screening of compounds is our current program on insect attractants. Industrial concerns are not including insect attractants in their current research programs. The remarkable attraction of male oriental fruit flies to methyl eugenol is well known to entomologists. This attractant, which was developed by our fruit insects laboratory in Hawaii, will be invaluable as a survey tool in areas of new infestations, and it might even prove effective in the control or eradication of the insect.

The discovery that this substance is highly attractive to males of the oriental fruit fly stimulated research on specific attractants for other important fruit flies. Only recently, the Hawaii laboratory found angelica seed oil to be a powerful specific attractant for the male Mediterranean fruit fly. Thus we now have a valuable survey tool in the current program for the eradication of this fly. Similar investigations have led to the discovery of anisyl acetone, an attractant superior to any previous one for the melon fly.

By and large, however, we depend on industrial companies to supply us with promising insecticides for further development. We prefer to obtain materials that have been shown to possess some insecticidal activity. We are prepared to accept such materials for further laboratory evaluation against various pests and for field testing if results justify it.

The branch has recently initiated a program to obtain better coordination of insecticide testing in our laboratories. In the past, companies have dealt directly with the field stations and sections. They are at liberty to continue this procedure if they prefer, but we are in the process of setting up a centralized contact unit where arrangements can be made for the preliminary testing of candidate materials on select insects at various laboratories.

The branch has about 115 field stations located throughout the United States and some foreign countries, and investigations are under way on several hundred insect pests. About 100 of these species are maintained as colonies or can be obtained in adequate quantities for conducting laboratory tests. Our plan is to have a promising compound received from industry or other sources tested in the laboratory against 10 to 25 economic species.

If these tests indicate broad insecticidal activity, the compound will be tested against additional species. Results of such tests in comparison with suitable standards against 25 to 50 or more economic species should serve as a guide for our laboratories and the submitting agency to determine whether field tests, residue studies, toxicological investigations, and other research are warranted.

The field testing of proved insecticides against specific pests to determine their biological effectiveness and suitable dosage rates, formulations, and schedules of treatment requires most of our effort on chemical control. The nature and scope of this program are, I am sure, well known to most of you, since much of the testing is done in close cooperation with the manufacturers and formulators.

In our research on insect control with chemicals we are soon faced with the problem of residues. Residues have long been important in connection with insecticide use. However, during the span of only ten years it has been necessary to conduct residue studies on dozens of entirely new chemicals and formulations, at various rates of application, on a wide range of raw agricultural products. Without doubt, this has become one of the most complex problems ever encountered in the entomological field. Yet, in spite of its magnitude and complexity, good progress has been made. Many new chemical control measures have been put into use which have saved the growers billions of dollars. To my knowledge no case of poisoning in man has resulted from insecticide residues on raw agricultural products.

The entomology research branch currently is spending close to $500,000 annually on various aspects of the residue problem. Most of this support has required shifting emphasis from other lines of research. The pesticide chemicals research section has a group at Beltsville, Md., working on various residue problems. The Beltsville laboratory also coordinates similar studies at five field locations.

The laboratory at Moorestown, N.J., devotes primary effort to soil residues; at Tifton, Ga., we are emphasizing basic studies on the disappearance of residues on forage crops; at Yakima, Wash., and Vincennes, Ind., we are investigating primarily residues on fruits, vegetables, and forage crops; and the Kerrville, Texas, laboratory is conducting residue studies in meat and milk. The Kerrville work is closely coordinated with toxicological studies on insecticides carried out under the leadership of veterinary toxicologists of the Department of Agriculture's animal diseases and parasite research branch.

Much of the work on residues has been carried out in close cooperation with industry. This is particularly true of the studies at Kerrville. During the last ten years at least 15 cooperative projects on residues and on the toxicity of insecticides to livestock have been carried out under formal agreements.

The increasing number of insects that have become resistant to insecticides is another major obstacle in the insecticide use field. This problem has kept much of our research on an emergency basis, so that it has not been possible to activate long-range programs. We have been criticized for not giving enough attention to basic research in entomology. We recognize the need for such investigations. But it is not easy to make major shifts from urgent applied problems to long-range basic research when the dairymen and general public are demanding relief from flies, when our cotton industry is threatened because of insecticide-resistant boll weevils, when the health of our troops is jeopardized because DDT no longer controls the louse vectors of typhus, and when fruit growers are in need of a safe substitute for controlling DDT-resistant codling moths.

Add to such problems a new highly destructive forage pest such as the spotted alfalfa aphid and the Mexican and Mediterranean fruit flies which are threatening the fruit industry in this country. These and other lesser but still urgent problems that have arisen during the last five years have necessitated applying all available research resources to find immediate solutions.

The use of parasites and predators has for many years been one of the first considerations in searching for methods of controlling new pests introduced from foreign countries. A recent outstanding example of the value of parasites is the successful control of the citrus black fly in Mexico. After establishment of this insect, the introduction of several species of parasites through cooperative effort of our government and the Mexican government has provided commercial control of the pest in Mexico, and at the same time alleviated greatly the threat to our own citrus industry.

The branch maintains two foreign laboratories, one in France and the other in India, in a continuing search for natural enemies that might be useful to control destructive insects in this country. A third foreign station has been established in the middle East to search for insects and diseases that might destroy undesirable plants in this country.

We know that many insects are of little economic importance because of natural enemies. There are extremists who believe that most insect problems will be solved if we let nature take its course. It is apparent that under modern farming practices, nature's balance between certain destructive insects and their parasites permits too much damage to meet standards of production efficiency. Therefore, we cannot depend on nature to solve our insect problems. But neither can we afford to ignore biological control. We encounter more and more instances where the use of insecticides has wiped out certain natural agents with the result that pests of secondary importance have become primary pests.

Very little research is currently under way on this problem. I know of no study that can become more involved than one designed to establish for a given crop the many relationships that exist between a destructive insect complex and its natural enemies, and then to determine the effect of insecticide treatments on such relationships. Yet this is a problem that must be solved for many insect species if we are to utilize insecticides with maximum efficiency.

In addition to parasites and predators, bacteria, viruses, fungi, and other organisms exert great influence in depressing insect populations. Often expected outbreaks do not materialize because of disease epizootics. A study of insect pathogens as a means of insect control is becoming an important aspect of entomology research.

California has devoted considerable effort in this direction during recent years; Canadian workers are giving much attention to such research, and our own branch for many years conducted limited research which led to the use of milky disease for Japanese beetle control. Recently a small but highly capable unit has been established in the branch to study insect diseases.

The distribution of insect pathogens in somewhat the same way that insecticides are applied may eventually be a means of controlling a number of destructive insects. Many disease organisms that are known to be highly virulent against their insect hosts are so specific in their action that there is little likelihood that they will prove harmful to man, animals, plants, or beneficial insect species. A number of promising insect pathogens are now under study in our branch.

A nematode originally found attacking codling moth larvae carries with it a highly virulent bacterial organism that is effective in killing a wide range of insect pests. Viruses show promise against such insects as the pine sawfly larvae,

*Presented at the annual meeting of the National Agricultural Chemicals Assn., Spring Lake, N.J., Sept. 5, 1956.

the cabbage looper, the corn earworm, and the tent caterpillar. A number of fungus diseases of aphids, including the spotted alfalfa aphid, are under investigations. However, the science of insect pathology is still in its infancy, and much is unknown about insect diseases, how to culture them, and how they can be used effectively for insect control.

In the conduct of entomological research it is essential to include insect biology and ecology. We admit that the estimated 7% of the total budget that we devote to biological studies represents far too little attention to this phase of entomology. The success of any insect control program, regardless of the method employed, hinges on a thorough knowledge of the insect's life. A knowledge of the life history and habits, host-plant relationships, and disease-carrying potential of the beet leafhopper has made it possible to protect much of the vegetable-seed industry in Idaho.

The recent discovery of a mite vector of peach mosaic may lead to the control of this virus disease through the use of sulfur. Certain knowledge regarding the life history and habits of the screw-worm—information that seemed academic at one time—suggested the research now under way that may lead to the eradication of this important livestock pest from the southeastern United States.

One of the vital functions of our branch is to obtain information and to prepare publications, particularly monographs, on insect classification. Our specialists in taxonomy identify insects for practically every agency in the nation and for many foreign countries. This phase of entomology requires about 6% of our total effort. Most people do not realize that the function of our taxonomic specialists goes far beyond the mere identification of specimens. Whenever a new or little-known pest is found, they are the best source of information on the life history, host relationships, and distribution of the insect. If nothing has been published about an insect, the specialist through information on related forms, can often predict with fair accuracy the probable life history, types of host plants, and original home of the insect. Such information is especially important in a search for parasites and predators.

Even though most of us in entomology recognize the value of such services, it is extremely difficult to obtain adequate financial support to maintain classification and identification work at the desired level.

There is probably no more economical or more desirable way to control insects than through the use of plant varieties that resist insect attack. This means of reducing insect losses, when incorporated in varieties having other desired qualities, is accomplished without cost to the grower, without creating a residue or other toxicological hazard, without damage to pollinating insects, and without upsetting nature's balance between host insects and their natural enemies. About 4% of the branch effort is devoted to this research. Entomologists work with plant breeders on this problem because insect resistance is just one of several qualities that must be incorporated into desirable plant varieties.

Currently cooperative research is under way on corn borer and corn earworm resistance in corn, hessian fly and wheat stem sawfly resistance in wheat, sugarcane borer resistance in sugarcane, and spotted alfalfa aphid and pea aphid resistance in alfalfa. The work that has already been done has proved highly productive. Wheats have been released that are practically immune to the hessian fly. Corn varieties are available that reduce corn borer losses by 70%. At least one variety of alfalfa is known that is not seriously affected by spotted alfalfa aphid infestations which completely destroy susceptible varieties.

The honey bee and other pollinators are among our most valuable insects. Without their pollination activities many of our most useful crops could not be grown. The bee industry is becoming more and more concerned about the effects of extensive and intensive chemical control practices on honey bees. In selecting insecticides and in recommending spray programs, it is important that damage to bees be held to a minimum. The importance of achieving insect control without significant damage to pollinators will, I am convinced, stimulate research on insect control practices that protect these beneficial insects. The branch program on bees is currently emphasizing research on the role of the honey and other bees in crop pollination. Although some effort is devoted to studies on the effect of chemicals on pollinators, the total effort is inadequate.

Cultural control, destruction of breeding places, general sanitation, destruction of crop refuse, and soil-management practices received far more research attention in the past than in our current program. For a cultural-control program to be effective, it is often necessary to have community cooperation.

The difficulty of obtaining sufficient participation in such programs is perhaps the chief reason for the poor acceptance of this method of insect control. We have an outstanding example of the benefits of a community-wide cultural-control program in connection with the control of the pink bollworm on cotton. In south Texas the Federal and State regulatory agencies require planting of cotton during the specified period and post-harvest destruction of plants before a certain date.

The absence of adequate amounts of suitable host material during the time when pink bollworm moths are active keeps the population at a low level. This practice, carried out primarily for controlling the pink bollworm, also greatly reduces damage by the boll weevil. In the more northern areas of cotton production, however, where often the cotton does not fully mature until near the time when frosts would kill the plants, and where the boll weevil enters a true state of hibernation as cold weather approaches, stalk destruction does not have the same effect in reducing the overwintering population as in the more southern areas.

The research on sexually sterile screw-worm flies which has been under way for several years has already been mentioned. The successful eradication of this insect from the 170 square-mile island of Curacao in the Netherlands Antilles by releasing sterile males has stimulated interest in this unique method of insect control. An intensive program is now under way to find the most efficient and economical means of rearing the hundreds of millions of screw-worm flies that will be required if a similar eradication program is carried out in Florida.

On numerous occasions I have been asked whether this technique will be feasible for controlling other insects. In my opinion, the chances for success of the method are limited to a relatively few insects. It might be practical to control these species that disperse readily when released and that can be reared economically and in large numbers under circumstances where the natural population is low or can first be reduced by other control measures.

Currently, we are conducting research on only one other type of insect to explore the feasibility of the sterile-male technique—that is on fruit flies in Hawaii. It is possible that we might find the method practical for eradicating incipient infestations of the type now existing in Florida.

There is little doubt in my mind that for years to come chemicals will be the most practical means of controlling most insects. However, I believe on the basis of our experience and certain new developments during the last 5 to 10 years that we will profit by emphasizing certain changes in our objectives.

Clearly indicated, in my opinion, is the need for better techniques to prove the usefulness of new insecticides. First of all we should have more basic information on the mode of action of chemicals and the relationship between chemical structure and biological activity. This will apply whether we are seeking an insecticide, a repellent, or an attractant. Chemists with industry and other research groups have made excellent progress. The availability of large numbers of highly active chemicals amply supports this conclusion. Nevertheless, further progress in this direction is needed.

We should know particularly what type of compounds will give maximum protection against insects with minimum toxicity to warmblooded animals. In view of the high cost of developing a chemical, it is also important that reliable but low-cost laboratory and small-plot test methods be developed which will permit an accurate appraisal of its practical value. Costly and time-consuming field tests to establish biological effectiveness and the equally costly toxicological and residue studies should not be made unless there is reasonable assurance that the compound will have a place in insect control.

It is also essential that adequate data to establish safety of a new compound be obtained at reasonable cost. This will require more attention to methods of assaying for residues and to basic research on disappearance of residues.

The problem of insects becoming resistant to insecticides must be resolved if chemicals are to be profitable to the manufacturer and satisfactory to the consuming public. This means continued basic and applied research on new types of chemicals and on methods of employing them.

Another important problem that must be given more consideration is the effect of insecticides on parasites, predators, pollinators, and wildlife. Chemicals specific in action against the pest with minimum effect on the beneficial organisms must be developed. Much progress in avoiding adverse effects of pesticides might be made by studies on optimum dosage rates and proper timing of treatments.

Systemic insecticides offer unusual promise as a means of insect control, and in my opinion warrant more attention. The protection of plants, such as cotton, for several weeks or months during the critical seedling stage without serious danger of upsetting the balance of beneficial insects appears to be an excellent approach to chemical control.

Many of our most serious insect problems involve young plants. If treatment is made on seeds or in the soil at the time of planting, it is likely that most of the residue will disappear by the time the crop is harvested. The potential for systemics is not limited to cotton. Their use may provide more effective and desirable insect control on many crops. Systemics for controlling livestock pests such as cattle grubs, ticks, lice, and other external parasites also offer great possibilities.

Another area of chemical control that deserves far more consideration than has been given to it is the use of attractants in combination with toxicants. The progress that has been made in meeting the insecticide-resistant fly problem by combining attractive fly foods with fly toxicants is an example of the merits of this approach to insect control. The success of the protein hydrolysate bait sprays for controlling the oriental, Mediterranean, melon, and Mexican fruit flies is another outstanding example of the value of attractants in insecticide programs.

The use of a combination of attractants and toxicants should greatly reduce the residue hazard. It might also make insect control possible without serious harm to beneficial parasites, predators, and honey bees. Our branch plans to do much more research on attractants. Our objective is to strengthen basic research on nutritional requirements of insects and on the nature of sex and other attractants.

The importance of applying chemicals that do a minimum of harm to beneficial insects has already been stressed. Other phases of research relating to biological control that need more attention include further exploration for insects to control noxious weeds. We believe that more attention should be given to biological-control work in the future. A special effort will be made to strengthen research on insect pathogens. More basic information will be obtained on the type of disease organisms that will give biological-control of destructive pests. The most promising organisms will be investigated in order to develop methods of culture and how to employ them in actual control operations.

I have already indicated that the use of plant varieties that resist attack is the ideal way to control insects because of the low cost and the avoidance of toxicological and residue problems and adverse effects to beneficial insects. Every effort will be made to strengthen research in this area of insect control. It is generally agreed that from 5 to 10 years are needed to make substantial progress in developing new plant varieties. We are hopeful, however, that we can join with plant breeders and other specialists in an expanded long-range program.

Other areas of research need to be maintained or expanded in the years ahead. Emphasis on new insecticides has resulted in the neglect of much work on the biology, ecology, and morphological relationships of insects. There is an urgent need for more basic information on factors causing fluctuations in insect populations. One of the greatest services that the entomological profession can render is to determine for the grower how and when to employ the insect-control tools we have. We must be in a better position to make long-range forecasts of outbreaks and to appraise the significance of an insect population in terms of potential damage to a crop.

Some day we should be in a position to inform the grower when control measures should be applied and when they are unnecessary. Increasing costs of crop production demand that maximum yields be obtained at minimum cost. To make substantial progress in this direction, we need extensive and intensive research on methods of insect survey and detection, economic effect at different levels of infestation, effect of climate, host relationships, interrelationship of the insect and biological control agents and other factors.

Much progress has been made in insect control, especially during the past decade. We have many good tools with which to work. Some of these tools need to be redesigned and sharpened, and others need more skillful use if we are to overcome or avoid some of the current obstacles. I am confident, however, that we are beginning to see what roads to follow for greatest success in our continuing effort to find new and better ways to control insects.

SAFETY MEETING

(Continued from page 1)

records. These are seen not only in the direct and obvious benefits coming through refunds from insurance companies and reduced insurance premiums, but also through more efficient operations within the plant.

Any effort made toward improving the safety record in a plant, must have the backing of top management, or it will fail, he declared. Actually, safety should begin on the drawing board, so that plants are designed for safe operation. Provisions must be made for the control of fumes, dust, and protection from moving machinery. This, along with the granting of budgets for the furtherance of safety, is management's job, he asserted.

Mr. DeVinny reported that Davison's phosphate mine operated one year without a lost-time accident, declaring that this could not have been achieved without the cooperation and influence of top management. Indoctrination for safety must be filtered from the top right down the line, the speaker said.

"Management is committed to protect itself from all risks in a plant," it was pointed out. Human nature being what it is, confirms the need for a well-planned and well-executed safety project, he added. Preaching safety is a missionary job—it must be maintained all the time to prevent the men in the plant from becoming careless and forgetful.

Attract Better Men

A plant with a good safety record attracts better types of employees, the Davison superintendent said. This is a by-product, but an important one, he reminded.

The importance of good record keeping on accidents, no matter how trivial, was pointed out by Mr. DeVinny as being the basis of real improvement in conditions. "A good reporting job is essential so top management can know what is going on in the plant," he said, adding that the supervisors can't do a good job without the backing of management. Analyzing accidents to prevent their recurrence is a responsibility of management.

J. Lauren Shopen, safety director, Consumer's Cooperative Assn., Kansas City, described the role of the safety director in a multiple unit organization. Confirming the theme expressed by Mr. DeVinny, Mr. Shopen declared that "accident and fire prevention must be an integral part of operations if the program of accident and fire control is to be successful. Top management support, and in fact, management support at all levels, is also vitally necessary if the program is to succeed." He added that the enthusiastic support of employees in a safety program is of similar importance.

Describing some of the operations conducted by his own organization, which covers a broad geographic area, Mr. Shopen said that some of the matters of most significance regarding the safety program include physical examinations of employees; orientation procedures to make the employee feel that he "belongs"; a good system of record keeping; regular safety meetings; adequate provisions for first aid in the plant; and a system of awards to employees who have made outstanding records.

Efforts are also made, he said, to make employees feel that they are an important part of the total organization, even though they may be located in cities far removed from headquarters. The maintenance of morale in an organization, Mr. Shopen asserted, is an important factor in the attitude of workers toward their jobs, and hence has a strong bearing on safety. In order to bind the far-away employees more closely to the organization, the tape recorders have been utilized to bring messages from top management to the far-flung branches, Mr. Shopen reported.

In describing the success of this, Mr. Shopen said that names of local people are often brought into the recording, so that far-off employees are surprised and flattered to find that the "boss" knows them.

Mr. Shopen discussed at some length, the significance of accident repeaters, declaring that when a given employee has been to the physician three times or more because of industrial injury, unless corrective action is instituted, an accident of really serious nature may occur.

He related an incident in which one employee had a total of 10 injuries, eight of which were eye injuries, over a period of time. "When we started this program and the supervisor received this list of excessive injuries, he immediately talked with the employee involved. He was successful in eliminating or greatly reducing injuries to the employee. The obvious cause, of course, was a lack of protective equipment. When the employee realized that his supervisor was conscious of his problem, he began to protect his eyes."

Bulletin boards also play an important part in separate operations which extend over several states. Mr. Shopen said that they keep constantly changing the posters appearing on the boards, so they look fresh and always have a new message. "The bulletin board should not be overlooked as an excellent medium to push the cause of accident prevention," he said.

Frequent inspections are also a part of the over-all safety picture in plants, Mr. Shopen explained. We discuss our recommendations with the superintendents and explain the reasons for all recommendations. We try to work with the supervisor, not against him. After all, the supervisor has the same basic objectives as the safety department; increased production with the lowest possible number of accidents. Copies of the recommendation report go to the division manager and the local manager.

Fire drills are also required, on a once-a-month basis, he said. In addition, the city fire department is encouraged to make regular inspections of the property so its members can become familiar with the facilities and their hazards. Likewise, employees in the plant become better acquainted with the fire department equipment and the necessary action procedure at a time of emergency.

In the interests of fire prevention, a master list of all fire extinguishers is maintained, so that suitable types of equipment are placed in locations most likely to have fires. Inspections are made at regular intervals, he explained, to be sure that all extinguishers are ready for action at any time. Fire training sessions for employees are also held so that everyone will know how to use the equipment in an emergency.

Since carelessness in handling dump trucks and other mobile equipment in a plant is responsible for numerous accidents, Mr. Shopen said that his firm has begun a program of driver testing to weed out any who are unfitted for this type of work. He said that one driver was found to have eyesight so poor that he could not read any of the letters on an eye chart. Other cases of unfitness have been uncovered through these tests, he said, with the result that operations are now on a safer basis.

C. S. Griffith, superintendent, fertilizer division of Virginia-Carolina Chemical Corp., Cincinnati, described to the group how to make safety meetings productive of the kind of results needed. "There is no substitute for safety," he told the assembly, and added that "you can insert safety anywhere or at any time into your lineup, and it will improve the entire team."

Using as an example his own plant, Mr. Griffith reported that the past four years have been the "safest years we have ever experienced." He gave full credit for this condition to information and inspiration gained at safety meetings of the National Safety Council.

He said that before joining the national group an effort had been made to promote safety in the plant, but the meetings had deteriorated with idle talk, excuses and even grievances, as well as wrangling, so that little was accomplished in the line of safety. The safety committee, he said, was composed of a "gang of men who were more interested in getting out of work to attend a meeting, than in the safety of their fellow workers." Because of this attitude, he said, the accident record grew worse and all kinds of excuses were made for it, including the plea that the plant was "unlucky."

In describing the situation in his plant, Mr. Griffith told the audience that since their plant is small and no safety engineer is available, the responsibilities of this function fall on the superintendent. The latter, though busy with other duties, believes that he should always be present at every safety meeting. "Safety is not a one-man job," he said, "and it is not just the job of management. It's not just the job of the man in the plant. It's not the job of a few foremen. It is the full time job of every one of us . . . preaching, talking and living safety . . . there can be no letdown in safety; it's too important!" he emphasized.

As a means to stimulating interest in safety in the plant, Mr. Griffith reported that his safety committee offers a prize each month to the employee who contributes the best slogan. As many as 35 have been entered in a single month, he said, and many of these are excellent. The winning slogan is placed on the bulletin board with the author's name, where it remains for a month.

Another means of generating interest in safety, he said, is the idea of distributing a few silver dollars to employees who give correct answers to questions on safety. An employee may be asked to describe the safety poster located above the time clock; or how many days the plant has operated without a lost time accident; or to give correctly the words of the winning slogan on the bulletin board. A correct answer brings a silver dollar, but the worker who can't reply is told to go out and find the correct answer. "We know of no better way to make the workers more observant of the important safety notices posted around the plant," Mr. Griffith said.

The men in the plant are also invited to make safety suggestions, some of which have been valuable. "The suggestions we receive indicate that these men are thinking," Mr. Griffith observed.

Safety Hard to "Sell"

A luncheon meeting opened the Oct. 23 program. H. S. Baucom, safety director of the North Carolina Industrial Commission, in his talk, "A Safety Program for the Average Plant," said that safety is sometimes a difficult item to "sell," since we are attempting to sell life to a man who already has one; arms, fingers and hands to men who already have them, and legs and feet to workers who figure they will always have them.

Two important reasons for promoting industrial safety are obvious, he said. One is that the program keeps well and alive people hired to do a job, so they can accomplish these ends; and the other, to cut down on the tremendous expense and costs of accidents.

He advised those selling safety to "get to the top three or four people in a firm" and much of the job will be done. From that point, the message will work its way down to the workers' level.

Five Necessary Steps

Five steps that must be taken to make a safety program successful were outlined by Mr. Baucom. They were: 1. Eliminate hazardous conditions. 2. Guard the hazard that can't be eliminated. 3. Protect workmen with goggles, safety shoes, protective clothing. 4. Formulate plant rules and regulations, and explain them carefully to the men. 5. Education. Teach employees in terms they can understand. "This won't eliminate all accidents, but it will train the men in proper methods," he said.

An illustrated talk on "How Electrical Accidents Occur and How They Can Be Prevented," was presented by Charles J. DeWitt, assistant divisional manager, Loss Prevention Dept., Liberty Mutual Insurance Co., Atlanta. Using as "props" an oversized voltage gauge and a dummy person to illustrate the dangers involved in "playing" with electricity, Mr. DeWitt presented a sobering array of facts showing electricity as a "killer" when handled with anything other than respect.

He emphasized the importance of having a ground wire on all electrical equipment to prevent the current from passing through the operator in case of a short or other irregularity. Such a short, he reminded, can be caused by a person's standing on wet ground or floor.

The speaker also warned that the mere presence of a ground wire may not indicate complete safety, since it may not be properly connected, or a connection may have been damaged through acid corrosion, vibration, rough use or for some other reason. Having such facilities tested frequently . . . every 90 days or so . . . was given as the best assurance that safety is actual.

Using his dummy as an example, he had the doll's hand touch an electric drill, and at the same time, touch a water pipe. The effect was that "Willie" the dumy, immediately became the carrier for the current and if he were a human being, would be killed on the spot. Using a sheet of blotting paper as insulation, the dummy was protected, but with the addition of moisture to the paper, the current again surged through its body. Mr. DeWitt called attention to the fact that many wires and light sockets are insulated only with paper and thus are potentially dangerous when moisture or dampness is added. He placed the common brass socket in this category, declaring that it affords "one of the finest places to get killed you ever saw."

Due to illness, one speaker, C. E. Hooks, Jr., of the Florida Industrial Commission, Tallahassee, was unable to attend the meeting, but in his place, W. T. Bodiford, safety supervisor for the commission talked.

Safety-Mindedness

Mr. Bodiford told the group that safety comes through the quality of safety-mindedness in people; that it is impossible to legislate safety and do so effectively.

Three phases of carrying out a safety program were outlined by Mr. Bodiford. These are: inspection, supervisory training and special industry program.

Inspection, Mr. Bodiford said, can do little more than relate existing hazards to failures in the program, but supervisory training is the real

key to the entire program. He said that this has proved true in hundreds of plants in Florida.

The special industry program in Florida has paid off well, Mr. Bodiford said. The factors entering into this success, he said, include a good basic law; good salaries for officials; qualified personnel to do the job; an effective educational program; and the establishment of codes.

Final feature on the program was a talk by Glenn F. Griffin, National Safety Council, Chicago, who gave many pointers on how to conduct a safety committee meeting.

Using a flannel board to emphasize his points, Mr. Griffin said that meetings are held to create and maintain enthusiasm; to teach something; to develop information at all levels; to make plans; and to change attitudes.

The above were presented as criteria of a good meeting, and Mr. Griffin then ask for suggestions from the audience about what constitutes a "bad" or ineffective meeting. These points were named as follows: lack of preparation; arriving at no conclusion; no enthusiasm; wandering off the subject; not enough participation from the committee members; lack of management representatives; poor leadership; and a prejudicial feeling toward the meeting based on previous experiences where nothing was accomplished.

Developing these ideas singly, Mr. Griffin submitted to his audience the idea that, to be effective, meetings must have a real purpose and everything that is said and done should work toward that end.

Curtis A. Cox, retiring general chairman of the fertilizer section, was presented with a plaque from the National Safety Council for having done an outstanding job with the section during the past year. The presentation was made by Vernon Gornto, Smith-Douglass Co., Norfolk, Va., a past chairman of the section.

A luncheon was given on Oct. 22 by the National Plant Food Institute in honor of the executive committee of the section. Paul T. Truitt, executive vice president of the Institute acted as host.

Executive Committee

In addition to the officers elected at the meeting, the section named a number of new men to the executive committee. These were: C. K. Brutcher, Davison Chemical Co., Div. W. R. Grace & Co., New Albany, Ind.; V. A. Frizzell, Triangle Fertilizer Co., Salinas, Cal.; R. A. Fischer, Milford (Del.) Fertilizer Co.; O. E. Perry, C. O. Smith Guano Co., Moultrie, Ga.; E. Nichols, Nichols Fertilizer & Chemical Co., Oklahoma City, Okla.; and B. A. Schlagenhauff, Brea (Cal.) Chemical Co.

The following were reelected to the board: S. Cottrell, Olin Mathieson Chemical Corp., Little Rock, Ark.; Mike C. Ellison, Mississippi Chemical Co., Yazoo City, Miss.; F. Wayne High, Baugh Fertilizer Works, Baltimore; Roger Hugg, International Minerals & Chemical Corp., Chicago; Grayson B. Morris, Southern States Cooperative, Richmond, Va.; Gordon W. Pittock, Wm. Stone & Sons, Ltd., Ingersoll, Ont., Canada; and M. F. Wharton, Arizona Fertilizers, Inc., Phoenix, Ariz.

George B. Simons Joins Balfour, Guthrie

SAN FRANCISCO — Dr. Ray E. Neidig, vice president of Balfour, Guthrie & Co., Ltd. and manager of its fertilizer division, has announced the appointment of George B. Simons, of Grand Forks, N.D., as field supervisor for North Dakota and western Minnesota.

Mr. Simons was formerly with North Dakota Extension Service for many years.

Stress Salesmanship, Service; Avoid Fertilizer Price Cuts, Washington Dealers Warned

YAKIMA, WASH.—Fertilizer dealers were urged to stick to fundamental principles of merchandising—good salesmanship and service—and refrain from price-cutting to maintain and improve their business position, it was pointed out at a series of six meetings held for dealers, distributors and manufacturers in Washington.

John G. Wilson, secretary of the Washington State Feed Assn., organized the meetings in Bellingham, Bellevue, Spokane, Yakima, Centralia and Vancouver.

Speakers at the meetings warned that the dealer who cuts prices to win favor with the farmer who is shopping around will lose his financial footing and weaken the entire fertilizer merchandising foundation.

Speakers at the meetings were: Lee Fryer, fertilizer division manager, Chas. H. Lilly Co., Seattle, program moderator; John McGinley, Spokane manager, Balfour, Guthrie & Co., who discussed new plants, and Robert Allard, Wilbur-Ellis Co., Seattle, who discussed dealers' problems.

"The dealers have reached a turning point in the road," Mr. Fryer said. "Developments can create or wipe out a dealer overnight. These meetings were organized to try to diagnose the dealer's problems and point out his opportunities."

Washington farmers are using 2½ times as much fertilizer as they did in 1949, Mr. McGinley said. His advice: "Keep your head and stick to the fundamentals. Concentrate on profit-per-ton. Sell with salesmanship and service—not with price cuts."

Mr. Allard defined two trends affecting dealers:

(1) Large companies going direct to the grower, and (2) Large food processors, who dealt with distributors for years, now turning to the local dealer to get better service for their growers.

Mr. Allard said some distributors are by-passing the dealer and going direct to the grower, but he pointed out advantages the local dealer has over a distributor in servicing the farmer: He is on the scene, knows the farmer and his problems, knows the soil, knows the farm history. He has warehousing. He can give better service. He understands the local credit problem and so can better judge the grower as a credit risk.

Mr. Allard said the dealer has an important place—if he gets out and sells and provides the services he should. "The distributor wants the dealer there," Mr. Allard said. "If he tries, he will stay there."

Central Washington's 80 fertilizer dealers were classified in two ways by Sidney Martin, of the Yakima Valley Spray Co.: Size: 10 large, 30 medium, 40 small; fertilizer sales: five with fertilizer as the major item, 25 who combine it with produce (potatoes, onions, etc.), and 50 feed dealers who sell fertilizer on the side.

Mr. Fryer said dealers grossing over $300,000 a year are averaging a 4% profit of about $12,000. Dealers grossing less than $75,000 a year "are averaging about zero," he said.

Mr. Fryer quoted from a Croplife article on a Dun & Bradstreet report, saying that the "two cardinal sins" of dealers are (1) not enough sales, and (2) poor pricing.

"If you cut your price 5%, you must sell 50% more to make the same profit," Mr. Fryer said. "If you cut 10%, you must sell 200% more."

Mr. Fryer said the industry is operating at a loss on 5 to 8% profit margins so that it cannot finance proper service to customers. "To stay in business, the dealer must revise his pricing and profit program," he said. "Don't sell too cheap!"

On the brighter side, Mr. Fryer said: "We are living in one of the most dynamic, rapidly-growing areas in the nation, with 70,000 acres of new land coming into production each year in the Columbia Basin—and with more intensive farming on older lands.

"You have men who know soils and seeds and fertilizers, men who want strongly to succeed, men who wish devoutly to apply the lessons of the laboratory to the soil—but you cannot support these men for the good of the industry and the good of yourself on an 8% profit margin. You must have 15%."

Mr. Martin moderated the discussion session, which brought out these statements:

When sound selling practices are not used, dealers, distributors and farmers sometimes find themselves buying fertilizer at the same price.

More distributors should be doing more promotion and education of the farmer.

Dealers too often use fertilizers as a price leader to attract business.

Among the questions and answers heard were:

Q.—Shouldn't the manufacturer punish the distributor who sends a salesman sailing through a territory, underselling the dealer?

A.—Policing the distributor is too costly; it has been tried.

Q.—Why has the price to the farmer gotten so low in some cases?

A.—We have become order-takers in some instances. We're so unfamiliar with selling and pricing that we are too ready to believe the farmer when he tells us our competitor is underselling us—and so we go along with a price cut.

Q.—What do you do when the farmer says it's cheaper down the street?

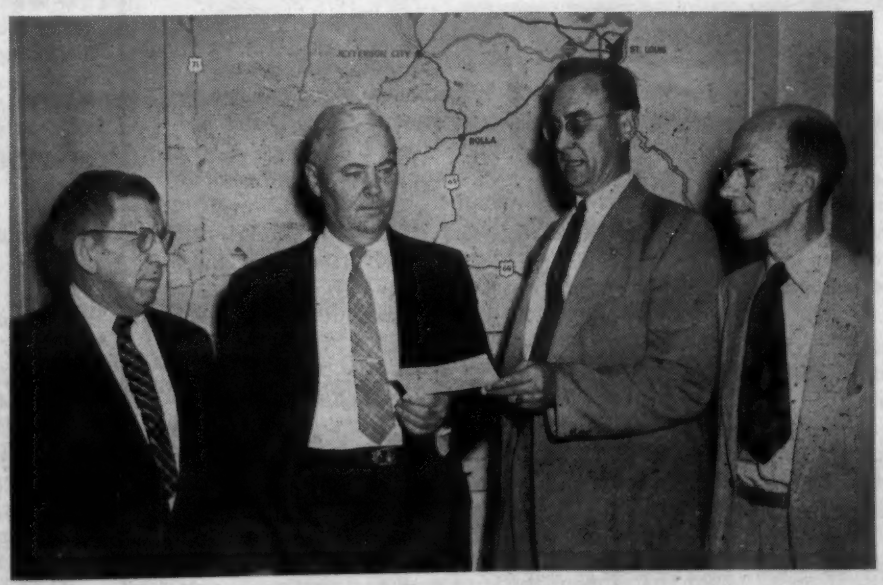
A.—Send him down the street. The dealer cannot afford to prostitute himself for 11 months and 29 days just to protect the price-cutter for one day.

A consensus of opinion at the meeting indicated that the dealers would have to turn, not to the manufacturers and distributors but to themselves for the answer—and the answer seemed to be in stable, adequate prices and profits.

An example of what can be done to correct the inadequate profit situation was cited by dealer Walt Van Horn concerning the "worst price-cutting area in the state." He said the three-county area dealers got together, talked, thought, agreed, worked out a hew-to-the-price line and have since been busily and happily hewing to it.

Mr. Fryer said he thinks the dealers will act. He thinks it will take another two years to get average profit margins up—to 15%.

"It's going to take a lot of concentration over profit and loss statements," Mr. Fryer said, "and that takes time."



OLIN-MATHIESON GRANT—John H. Brown, St. Louis, second from right, district sales manager of Olin-Mathieson Chemical Corp., Little Rock, Ark., presents John H. Longwell, dean of the Missouri College of Agriculture, with a $2,500 check from his company for research in the college's soils department. Also included in the picture are Dr. W. A. Albrecht, left, chairman of the soils department, and Dr. C. Merrill Woodruff, right, associate professor of soils. The grant is for $7,500 and is to be used over a three-year period. Dr. Woodruff will use the grant on a research project designed to determine the difference in energy by which chemical reactions send nutrients from the soil to plant roots and back.

FDA

(Continued from page 1)

ing the toxicity of the compound when fed to test animals with each of the other organic phosphate pesticides which has a tolerance at that time. This requirement will be relaxed if additional scientific evidence shows it can be done without hazard to the public health."

There are official tolerances in effect now for five organic phosphate pesticides: parathion, methyl parathion, malathion, EPN and Systox. The new requirements will make it harder for pesticide chemical manufacturers to get new tolerances, FDA said.

For example, a firm that wishes a tolerance for a new compound in this group will have to determine its toxicity alone, and its toxicity when it is combined with each of the five other organic phosphates that already have tolerances.

Dr. A. J. Lehman, chief of the division of pharmacology, FDA, said that such extensive testing is necessary because no one knows yet the mechanism by which one organic phosphate increases or potentiates the toxicity of another. However, Dr. Lehman states: "As soon as someone works out the mechanism of the potentiation, it may be possible to determine the safety of a new compound with less research than is needed today; we are having to ask for more data now because the fundamental science of this phenomenon (potentiation) is not understood. When we understand the fundamental science, the scope of the problem will become apparent. This may permit a distinct shortening of the research required in this field."

Croplife®

A WEEKLY NEWSPAPER FOR THE FARM CHEMICAL INDUSTRY

The regional circulation of this issue is concentrated in the Northeastern states.

Industry Girds for Battle as N-P-K Question Grows Acute

One of the largest hassles that the fertilizer trade has gone through in many a day is shaping up right now, with pros and cons being expressed on every side regarding the prosposed change in fertilizer guarantees to N, P and K instead of the present system of N, P_2O_5, and K_2O.

The American Association of Fertilizer Control Officials, in their recent meeting in Washington, adopted a resolution expressing approval of a change in the model state fertilizer bill which would re-define words and terms in guaranteed analyses of fertilizers after July 1, 1960.

The new amendment provides for a considerable time to elapse before it becomes effective. Setting July 1, 1960, as the effective date, the control officials have expressed the opinion that this will provide adequate time for necessary adjustments to be made.

Many of the control officials have stated that their only motive in making this move is to reduce confusion to a minimum and to gain as much uniformity as possible from the start. They have pointed out that the original idea was not their own; that the move toward NPK was first instituted by other scientific societies, and they, the control officials, are eager only to see that the transition is made in the most unobtrusive manner possible.

The model bill recognizes the possibility of economic hardship on distributors and users of fertilizers in cases where there may be conflicting labeling requirements among the states, and provides for public hearings in such an event.

The bill also says that the effective date of the regulation establishing the elemental designations of N, P, and K, shall be effective in not less than six months following its issuance, and for a period of two years following the effective date of the regulation, labels shall show both the old and new forms. This of course stretches out to several years, the time between the present and the date of complete effectiveness. In the opinion of the control officials, this provides a gradual transition which should create a minimum of hardship among the manufacturers, distributors, dealers and users.

Opposing viewpoints have been expressed by many representatives of the fertilizer trade, however. Conversations with industry leaders indicate that their opposition is based on a number of grounds which, they believe, constitute sufficient weight to nullify any advantages involved.

In the first place, it has been pointed out, the change to NPK would result in scrapping all of the experiment station bulletins, technical articles and textbooks which have been written in terms of P_2O_5 and K_2O. These writings would mean casting aside many years of agricultural research and millions of dollars of state and government appropriations used in their development.

Some industry men have also expressed belief that attempts to incorporate the new proposal into state legislatures would actually result in less uniformity than now exists, since attempted changes of this character are certain to precipitate severe legislative battles in many states. There could thus be as many defeats as there might be victories for the amendment, which they say would create a more complex situation than we have at present.

It has been pointed out also that those who are unfamiliar with the technical features of the manufacture of mixed fertilizers, may fail to appreciate how a change in the guarantee terminology could greatly alter the competitive relationships of fertilizer materials, substantially modify the composition of mixed fertilizers, reduce their quality and increase their cost to the farmer.

A popular 10-10-10 fertilizer under the present system might contain 1,030 lb. of 20% P_2O_5 superphosphate; 250 lb. of 41% nitrogen solution; 90 lb. of 45% urea; 300 lb. of 20.5% sulfate of ammonia; and 330 lb. of 62% K_2O muriate of potash for a total of 2,000 lb.

When the farmer buys this product, it is explained by the fertilizer manufacturers, the user obtains about 620 lb. calcium sulfate and about 78 lb. additional sulfur from the ammonium sulfate. Both the soluble calcium and the soluble sulfate are essential plant foods which would need to be purchased extra by the farmer in the humid areas of the U.S. if they were not furnished free in superphosphate.

Under the proposed NPK plan, however, it is brought out that a fertilizer grade designated as 14-14-14 would contain 1,400 lb. of diammonium phosphate; 545 lb. of 62% muriate of potash and 55 lb. of conditioner.

Such a product would contain no calcium and no sulfur and the NPK would be 100% water soluble, fertilizer makers have pointed out. It would be completely misleading to a farmer, they say, because he has been trained to recognize a 10-10-10 or 12-12-12 as a well-balanced plant food. However, under the elemental system, when this same farmer would use a 14-14-14, he would actually have a 14-33-17, if it were figured on the regular oxide basis.

One industry spokesman has pointed out that the farmer loses further because the manufacture of such materials is not the least expensive means of achieving the same results, and adoption of the elemental basis would thus make the cost higher to the ultimate user.

Just where the discussion of N-P_2O_5-K_2O vs N-P-K will take us, is anybody's guess at this stage of the game. It is sure that the trade will be hearing more and more about the issues at stake, and it is likely that many new ideas and suggestions will be forthcoming in the future.

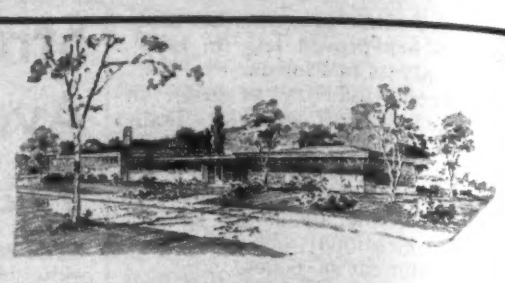
Quote

"With all these technological advancements, we have to be concerned with the safety of the consumer. . . . With so many different chemicals being used in and around homes, you can appreciate that the chemical industry has a major responsibility to maintain high safety standards.

"This year marked the fiftieth anniversary of the Pure Food and Drug Act of 1906. This law and subsequent legislation provides a high code of ethics on the part of all concerned with the production and marketing of food and drugs. It also places great regulatory responsibility on the shoulders of certain government agencies. However, it is well recognized that the country cannot rely alone on the policing power of government agencies to maintain high standards.

"Police action can deal with outlaws, but the greatest protection for all of us is the integrity and conscience of those around us. Consequently, the chemical industry must take for granted the fact that one of the largest single cost items in the development of biological chemicals is the research necessary to assure that these chemicals health.

"I believe I echo the sentiments of the agricultural chemicals industry as a whole when I say that it has everything to gain and nothing to lose from a very vigorous and vigilant program on the part of the Department of Agriculture and the Food and Drug Administration. In our contacts with the responsible officials of these agencies, we have found them at all times eminently reasonable and entirely fair. We have no fears for the future in this respect."—Howard A. Weibel, Grasselli Chemicals Dept., E. I. duPont de Nemours & Co., Inc., before Men's Garden Club of Atlanta.



Croplife

EPA Member of Business Publications Audit

NBP Member of National Business Publications

CROPLIFE is a controlled circulation journal published weekly. Weekly distribution of each issue is made to the fertilizer manufacturers, pesticide formulators and basic chemical manufacturers. In addition, the dealer-distributor-farm adviser segment of the agricultural chemical industry is covered on a regional (crop-area) basis with a mailing schedule which covers consecutively, one each week, four geographic regions (Northeast, South, Midwest and West) of the U.S. with one of four regional dealer issues. To those not eligible for this controlled distribution Croplife subscription rate is $5 for one year ($8 a year outside the U.S.). Single copy price, 25¢.

LAWRENCE A. LONG
Editor

DONALD NETH
Managing Editor

EDITORIAL STAFF — John Cipperly, Washington Correspondent; George E. Swarbreck, Canadian and Overseas Editor; Emmet J. Hoffman, Merchandising Editor; Walter C. Smith, Research Director.

WILFRED E. LINGREN
Advertising Director

BUSINESS STAFF—Carroll K. Michener, Chairman of the Board of Directors; Harvey E. Yantis, President; Milton B. Kihlstrum, Executive Vice President and Treasurer; Martin E. Newell, Vice President; Don E. Rogers, Vice President; Wilfred E. Lingren, Secretary; Thomas A. Griffin, Business Manager; Edwin J. Hartwick, Circulation Manager; James G. Pattridge, Assistant Treasurer; Carl R. Vetter, Advertising Production Manager; Bruce A. Kirkpatrick, Assistant Advertising Production Manager; Richard Ostlund, Office Manager; W. O. Buchkosky, Production Superintendent.

BRANCH OFFICES

EASTERN STATES—Paul L. Dittemore, Eastern Advertising Sales Manager; George W. Potts, New York Office Manager; Suite 3214, 551 Fifth Ave., New York 17, N.Y. (Tel. Murray Hill 2-2185).

CENTRAL STATES—Don E. Rogers, Manager; Henry S. French, Assistant Manager; 2272 Board of Trade Bldg., 141 W. Jackson Blvd., Chicago 4, Ill. (Tel. Harrison 7-6782).

SOUTHWEST—Martin E. Newell, Manager; James W. Miller, Assistant Manager; 612 Board of Trade Bldg., Kansas City 5, Mo. (Tel. Victor 2-1350).

NORTHWEST—Paul A. Anderson, Advertising Sales Representative, P.O. Box 67, Minneapolis 1, Minn. (Tel. Federal 2-0575).

WASHINGTON CORRESPONDENT — John Cipperly, 604 Hibbs Bldg., Washington, D. C. (Tel. Republic 7-8534).

EXECUTIVE AND EDITORIAL OFFICES — 2501 Wayzata Blvd., Minneapolis, Minn. Tel. Federal 2-0575. Bell System Teletype Service at Minneapolis (MP 179), Kansas City (KC 295), Chicago (CG 340), New York (NY 1-2452), Washington, D.C. (WA 82).

Published by
THE MILLER PUBLISHING CO.
2501 Wayzata Blvd., Minneapolis, Minn.
(Address Mail to P. O. Box 67, Minneapolis 1, Minn.)

Associated Publications—THE NORTHWESTERN MILLER, THE AMERICAN BAKER, FEEDSTUFFS, MILLING PRODUCTION

MEETING MEMOS

Oct. 30—Arizona Agricultural Chemicals Assn., Annual Meeting, Westward Ho Hotel, Phoenix.

Oct. 30-31—Washington State College Aerial Dusting and Spraying Conference, Walla Walla, Wash.

Oct. 31-Nov. 2—Mississippi Fertilizer Conference, Beuna Vista Hotel, Biloxi, Miss.

Nov. 1—Southern Regional Soil Research Committee, Annual Meeting, Atlanta Biltmore, Atlanta, Ga.

Nov. 1-3—Annual Aerial Applicators Conference of National Aviation Trades Assn., Chase Hotel, St. Louis, Mo. Charles A. Parker, Executive Director, 1346 Connecticut Ave., Washington 6, D.C.

Nov. 2—Southern Soil Fertility Conference, Atlanta-Biltmore Hotel, Atlanta, Ga.

Nov. 7—Fertilizer Manufacturers Conference, Iowa State College, Ames, Iowa.

Nov. 7-9—Agricultural Ammonia Institute, Annual Convention, Atlanta Biltmore Hotel, Atlanta, Ga., Jack F. Criswell, Claridge Hotel, Memphis, executive vice president.

Nov. 7-9—Pest Control Operators Short Course, Virginia Polytechnic Institute, Blacksburg, Va.

Nov. 7-9—Pacific Northwest Plant Food Assn., Annual Convention, Harrison Hot Springs Hotel, Harrison Hot Springs, British Columbia, Leon S. Jackson, Lewis Bldg., Portland, Ore., secretary.

Nov. 8—Ninth Annual Fertilizer Dealers Short Course, Iowa State College, Ames, Iowa.

Nov. 8—Technical Session on Phosphate Fertilizer Manufacture, at Midwest Regional Meeting of Chemical Engineering Section, American Chemical Society, Iowa State College, Ames, Iowa.

Nov. 9—Session for Fertilizer Industry, South Carolina Accident Prevention Conference, Jefferson Hotel, Columbia, S.C.

Nov. 11-13—California Fertilizer Assn., 33rd annual convention, Del Coronado Hotel, Coronado, Cal.; Sidney H. Bierly, executive secretary, 475 Huntington Drive, San Marino 9, Cal.

Nov. 12-14—Oregon Weed Conference, Pilot Butte Inn., Bend, Ore.

Nov. 12-16 — American Society of Agronomy, Annual Meeting, Netherlands Plaza Hotel, Cincinnati.

Nov. 13-15—18th Annual New York State Insecticide and Fungicide Conference and 9th Annual Pesticide Application Equipment Conference, Bibbins Hall, Cornell University, Ithaca, N.Y.

Nov. 15-16 Washington State College Weed Conference, Pullman, Wash.

Nov. 16—Arkansas Fertilizer School, Sponsored by University of Arkansas and Plant Food Educational Society of Arkansas, Marion Hotel, Little Rock.

Nov. 19-20—Eastern Branch, Entomological Society of America, Hotel Haddon Hall, Atlantic City, N. J., B. F. Driggers, Rutgers University, New Brunswick, N.J., secretary.

Nov. 19-20—Ohio Pesticide Institute winter meeting, Neal House, Columbus, Ohio.

Nov. 27-28—Indiana Fertilizer Conference, Memorial Union, Purdue University, Lafayette, Ind.

Nov. 28—Oklahoma Fertilizer Dealers Conference, Sponsored by the Oklahoma Plant Food Educational Society, Oklahoma A&M College, Stillwater.

Nov. 29—Oklahoma Soils and Crops Conference, Oklahoma A&M College, Stillwater.

Nov. 29—New Jersey Pesticide Dealers Conference, Rutgers University, New Brunswick, N.J.

Nov. 29-Dec. 1—Washington State College Ground Applicators Short Course, Puyallup, Wash.

Dec. 3—Sixth Annual Minnesota Soils and Fertilizer Short Course, Coffey Hall Auditorium, St. Paul Campus, University of Minnesota.

Dec. 6-7—Alabama Soil Fertility Society, Whitley Hotel, Montgomery, Ala.

Dec. 10-12—13th Annual North Central Weed Control Conference, Sherman Hotel, Chicago.

Dec. 12—American Society of Agricultural Engineers, Power and Machinery Section, in Cooperation with the National Joint Committee on Fertilizer Application, Edgewater Beach Hotel, Chicago.

Dec. 13-14—Soil Fertility and Plant Nutrition Short Course, University of Missouri, Columbia, Mo.

Dec. 13-14—Cotton Production Conference, The Titwiler, Birmingham, Ala.

Dec. 27-31—Entomological Soicety of America, Annual Meeting, Hotel New Yorker, New York City.

1957

Jan. 8-9—Texas Fertilizer Conference, Texas A&M, College Station, Texas.

Jan. 10-12—Northeastern Weed Control Conference, McAlpin Hotel, New York.

Jan. 21-25—Pacific Northwest Vegetable Insect Conference and Northwest Cooperative Spray Project, Imperial Hotel, Portland, Ore.

Jan. 23-24 — Fourth Annual Pacific Northwest Agricultural Chemicals Industry Conference, Benson Hotel, Portland, Ore., Sponsored by Western Agricultural Chemicals Assn., C. O. Barnard, 2466 Kenwood Ave., San Jose 28, Cal., Executive Secretary.

Jan. 23-25—Southern Weed Conference, Bon Aire Hotel, Augusta, Ga.; Walter K. Porter, Jr., Agricultural Experiment Station, Louisiana State University, Baton Rouge, secretary.

Jan. 28-29—National Cotton Council of America, Annual Meeting, St. Louis, Mo.

Jan. 31-Feb. 1-2—Agricultural Aircraft Assn., Annual Convention, Senator Hotel, Sacramento, Cal., Wanda Branstetter, Route 3, Box 1077, Sacramento, Executive Secretary.

Feb. 4-6—Cotton States Branch, Entomological Society of America, Birmingham, Ala. W. G. Eden, secretary-treasurer, Alabama Polytechnic Institute, Auburn, Ala.

March 6-8 — National Agricultural Chemicals Assn., Spring Meeting, Fairmont Hotel, San Francisco, L. S. Hitchner, 1145 19th St. N.W., Washington, D.C., Executive Secretary.

June 17-19—Fifteenth Annual Convention of the Association of Southern Feed and Fertilizer Control Officials, Dinkler-Tutwiler Hotel, Birmingham, Ala., Bruce Poundstone, Kentucky Agricultural Experiment Station, Lexington, Ky., Secretary-Treasurer.

June 26-28—Eighth Annual Fertilizer Conference of the Pacific Northwest, Benson Hotel, Portland, Ore. B. R. Bertramson, Washington State College, Pullman, Wash., chairman.

July 17-19—Southwestern Fertilizer Conference and Grade Hearing, Galvaz Hotel, Galveston, Texas.

H. M. ARMITAGE CITED

SACRAMENTO — The California Board of Agriculture in session at Davis presented a resolution of congratulations to Horace Morton Armitage, retired chief of the Bureau of Entomology, California Department of Agriculture, for his more than 43 years of service to agriculture. A scroll relating important contributions which Mr. Armitage rendered to the agricultural industry of California was presented on behalf of the board by A. J. McFadden, president. Mr. Armitage retired on November 1, 1955. The resolution particularly cited Mr. Armitage for his work in eradication of the Mexican bean beetle in California and for notable progress in the campaign against the Khapra beetle.

Fulton Bag to Close St. Louis Textile Plant

NEW ORLEANS, LA.—Officials of Fulton Bag & Cotton Mills have announced the consolidation of the company's St. Louis textile manufacturing operations along with the expansion of the Kansas City branch plant and Chicago sales office.

Jason M. Elsas, vice president and general manager, Fulton's bag division, New Orleans, said the obsolete, multi-storied textile bag plant in downtown St. Louis will be closed. Sales headquarters for textile, multiwall paper bags and other Fulton products will be housed in the modern, singled-story multiwall plant at 4501 Gustine Ave. in St. Louis.

All operations of the St. Louis textile bag plant will be absorbed principally by Fulton's Kansas City plant. Facilities at Kansas City, Kansas, are being enlarged.

Wherever possible, employees of the St. Louis textile bag plant will be transferred to other factories, officials pointed out.

TANK TRUCK STRUCK

WICHITA — Several men escaped without serious injury when a tank truck of the Frontier Chemical Co., Wichita, filled with 3,285 gallons of hydrochloric acid was struck by a two-car Rock Island rail test train in Wichita, Oct. 4. The driver of the truck and three of a five-man train crew suffered bruises and abrasions. Some members of the sheriff's patrol, which remained at the scene until safety from acid fumes and gasoline tanks of the truck was assured, sustained acid burns.

Classified Ads

Classified advertisements accepted until Tuesday each week for the issue of the following Monday.

Rates: 15¢ per word; minimum charge $2.25. Situations wanted, 10¢ a word; $1.50 minimum. Count six words of signature, whether for direct reply or keyed care this office. If advertisement is keyed, care of this office, 20¢ per insertion additional charged for forwarding replies. Classified advertising rate not available for commercial advertising. Advertisements of new machinery, products and services accepted for insertion at minimum rate of $9 per column inch.

All Want Ads cash with order.

FOR FAST ACTION AND RESULTS try

Croplife's

CLASSIFIED ADVERTISING

Meyer Lemon Free Districts Established

SACRAMENTO — The California Department of Agriculture has adopted regulations establishing districts free from Meyer lemon trees in two areas of the Sacramento and San Joaquin Valleys in an effort to combat quick decline disease of citrus trees. The disease has caused heavy losses of orange trees growing on sour orange rootstock in Southern California.

The Meyer lemon-free districts include the commercial citrus areas and a ten mile wide border zone surrounding such areas in Fresno, Tulare, Kern, Glenn, Tehama, Butte and Yuba counties. Under terms of the new regulations all Meyer lemon plants or trees in these areas must be destroyed or removed starting Oct. 12. After that date the movement of Meyer lemon trees into the districts is prohibited.

SAFETY MEASURE

SACRAMENTO, CAL. — Agricultural Aircraft Assn., Inc., is now using scotchlite decals on equipment when spraying with poison chemicals. These safety decals, available through the association office, are red with white letters, 12 inches high by 7⅝ inches wide, and contain the following message printed in both English and Spanish: "Poison Keep Away."

INDEX OF ADVERTISERS

Allied Chemical & Dye Corp., Nitrogen Division
American Potash & Chemical Corp.
Anco Manufacturing & Supply Co.
Ashcraft-Wilkinson Co.

Baughman Manufacturing Co., Inc.
Beaird, J. B., Co.
Bemis Bro. Bag Co.
Blue, John, Co.
Bonneville, Ltd.
Bradley & Baker
Broyhill Company 3
Butler Manufacturing Co.

Chase Bag Co.
Commercial Solvents Corp.

Davison Chemical Co.
Deere & Co., Grand River Chem. Div.
Douglas Chemical Company
E. I. du Pont de Nemours & Co., Inc.

Farm & Ranch
Flint Steel Corporation

Hahn, Inc.
Hercules Powder Co.
Hough, Frank H., Co.

International Minerals & Chemical Corp.

Johns-Manville Corp.

Kent, Percy, Bag Co.
Kraft Bag Corp.

Meredith Publishing Co.
Miller Publishing Co., The
Minerals & Chemical Corp. of America
Mississippi River Chemical Co.
Monsanto Chemical Co.

National Potash Co.
Naugatuck Chemical Div., U. S. Rubber Co.
Nitrogen Div., Allied Chemical & Dye Corporation

Olin Mathieson Chemical Corp.

Penick, S. B., & Co.
Pennsylvania Salt Mfg. Co. of Washington.
Phillips Chemical Co.
Potash Company of America
Private Brands, Inc. 13

Rieke Metal Products Corp.

Shell Chemical Corp.
Sinclair Chemicals, Inc.
Smith-Rowland Co., Inc.
Spencer Chemical Co.
Stauffer Chemical Co.
Stewart-Warner Corp.
Successful Farming

Tennessee Corp.

Union Bag-Camp Paper Corp.
U. S. Phosphoric Products Division
U. S. Potash Co.
U. S. Rubber Co., Naugatuck Chem. Div.
U. S. Steel Corp.

Velsicol Chemical Corp.
Virginia-Carolina Chemical Corp.
Vulcan Containers, Inc.

if your product is marketed through distributors and dealers...

Croplife is for YOU!

AN IMPORTANT EXCLUSIVE is available to advertisers whose agricultural chemical products are marketed through distributors and dealers. It is Croplife's unique *regional crop-area circulation plan*, carefully developed to fill an urgent need in the industry's marketing and advertising facilities—the need of advertisers to reach the dealers and distributors and farm advisers with an up-to-date story of their products and their consumer promotion plans.

THIS IS THE PLAN: In addition to the weekly circulation to manufacturers and formulators, Croplife is distributed on a regional crop-area basis to the dealer-distributor-farm adviser segment of the industry. The merchandising section in each issue of Croplife is specifically edited for dealers in one specific region. This carefully planned editorial formula insures intense reader interest.

More than 15,000 DEALERS, 1,700 custom operators and 1,000 farm advisers receive the issue of Croplife specifically edited for their regional crop-area once each four weeks. The mailing schedule for this group covers consecutively four geographic regions of the United States (see map) with one of four regional dealer issues: The Northeast Dealer Issue, the South Dealer Issue, the Midwest Dealer Issue or the West Dealer Issue. Each week Croplife goes to more than 4,500 dealers, distributors and farm advisers in one of these four regional crop-areas.

THIS CIRCULATION EXCLUSIVE is available only through Croplife. The regional crop-area circulation to dealers has been carefully developed to fit the particular needs of the agricultural chemical industry. Many individual products have been developed and approved and are being sold for use on a specific crop; therefore, marketing and promotion plans must be directed specifically to the appropriate crop-area. Croplife's dealer circulation developed along crop-area lines offers advertisers the *most flexible medium possible*, designed to give "direct-hit" coverage for specific messages without the higher cost of a larger-than-necessary circulation on an inflexible nationwide basis. Advertisers interested in reaching dealers in more than one region can do so easily and economically with a selective advertising schedule.

In addition to its national coverage, Croplife offers a selective regional circulation plan in these crop-areas

HOW TO USE THE PLAN: Select the regional crop-areas—Northeast, South, Midwest or West—in which you need to reach dealers, distributors and farm advisers with the up-to-date story of your products and your consumer promotion plans. Plan your message to inform and to educate this group. Then, select the appropriate issues of Croplife to carry your advertisements. Croplife's printed circulation statement outlines the four regional crop-areas in detail and gives the issue-by-issue mailing schedule. Ask us for a copy.

AND NOW—4000 more selected dealers have been added!

BEGINNING IN 1956 this important circulation exclusive became even more valuable to advertisers who are reaching dealers through the pages of Croplife. An additional 4,000 selected dealers handling agricultural chemicals are now receiving the issues of Croplife edited specifically for their crop-areas. One thousand dealers in each regional area were screened and verified and have been added to Croplife's controlled circulation plan, bringing the total number of dealers, distributors and farm advisers receiving Croplife to more than 18,000. Each week Croplife goes to more than 4,500 of these interested readers in one of the four regional crop-areas.

MAKE YOUR PLANS NOW to capitalize on this unique advertising opportunity, exclusively through the pages of Croplife.

WRITE-WIRE-PHONE for the full story of your advertising opportunity in

BPA
Member of Business Publications Audit

Croplife
...for richer sales fields

published by **The Miller Publishing Co.**

NBP
Member of National Business Publications

NEW YORK
551 Fifth Ave.
MUrray Hill 2-2185

CHICAGO
2272 Board of Trade Bldg.
HArrison 7-6782

KANSAS CITY
612 Board of Trade Bldg.
VIctor 2-1350

MINNEAPOLIS
2501 Wayzata Blvd.
FEderal 2-0575